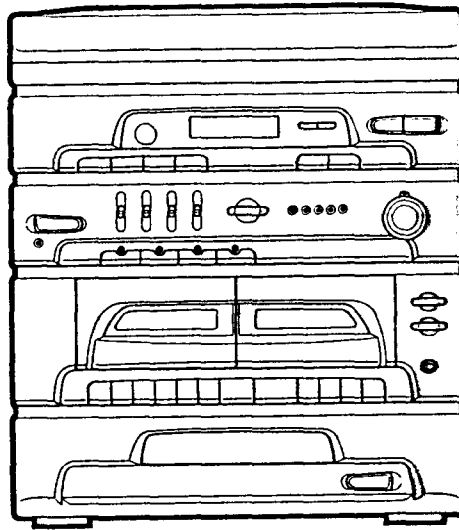


Service Manual

Digital Stereo Sound System

DC-X850 (AU)



Specifications

PRODUCT CODE No.
129 454 02

TURNTABLE SECTION

Type Belt drive auto-return
Rated speed 33 1/3, 45rpm

TUNER SECTION

Reception frequency ... FM : 87.5 - 108 MHz
AM : 531 - 1,602 kHz
(9 kHz step)

CD PLAYER SECTION

Channels 2-channels stereo
Sampling frequency 44.1 kHz
Pick-up Optical 3-beam semiconductor
laser
Laser output 0.6 mW (Continuous wave max.)
Wave length 790 nm
Frequency response 20 Hz - 20,000 Hz
Wow & Flutter Below measurable limits

CASSETTE DECK SECTION

Track system 4-track, 2-channels stereo
Frequency response 60 Hz - 14,500 Hz (CrO2 tape)
60 Hz - 13,500 Hz (Normal tape)
Signal-to-noise ratio 60 dB (Dolby NR ON)
Wow & Flutter 0.15 % (WRMS)
Fast forward /
rewind time Approx. 110 sec. (C-60)

GENERAL

Output power 20 W x 2 (at 4 ohms,
10 % distortion)
Inputs VIDEO : 400 mV / 50k ohms
Outputs SPEAKERS : 4 ohms
PHONES : 8 - 32 ohms
Power requirements AC : 230 - 240 V, 50 Hz
Power consumption 75 W
Dimensions 350 (W) x 423 (H) x 369 (D) mm
Weight 8.2 kg

Specifications subject to change without notice.

REFERENCE No. SM580639

CONTENTS

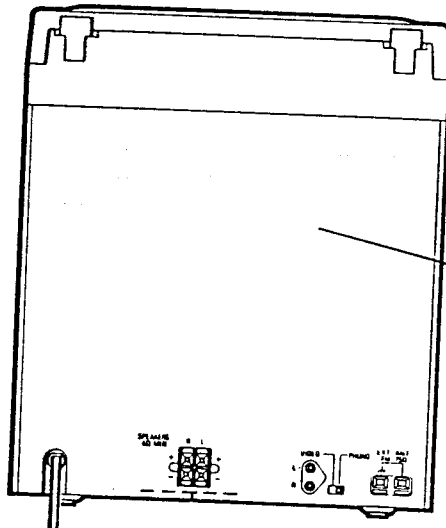
SPECIFICATIONS	TOP	CD PLAYER MECHANISM ADJUSTMENTS	8
LASER BEAM SAFETY PRECAUTIONS	1	CD PLAYER ADJUSTMENTS	11
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LASER BEAM SAFETY PRECAUTIONS

- Pick-up that emits a laser beam is used in this CD player.

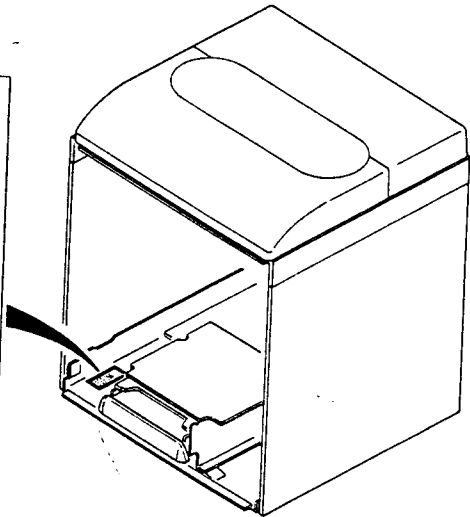
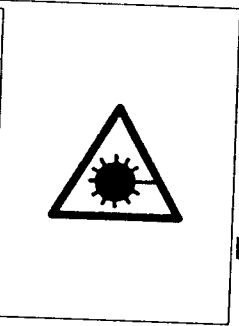
CAUTION :
USE OF CONTROLS OR ADJUSTMENTS
OR PERFORMANCE OF PROCEDURES
OTHER THAN THOSE SPECIFIED
HEREIN MAY RESULT IN HAZARDOUS
RADIATION EXPOSURE

LASER OUTPUT 0.6 mW Max. (CW)
WAVELENGTH 790 nm



CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

CAUTION - INVISIBLE LASER RADIATION WHEN OPEN AND
INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.
ADVARSEL - USYNLIG LASER STRÅLING VED ÅBNING, NÅR
SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION, UNDGÅ UDSÆTTELSE
FOR STRÅLING.
VARNING - OSYNLIG LASER STRÅLNING NÅR DENNA DEL ÄR ÖPPNAD
OCH SPÄRR ÄR URKOPPLAD. STRÅLEN ÄR FARLIG.
VORSICHT - UNSICHTBARE LASERSTRAHLUNG TRITT AUS, WENN
DECKEL GEÖFFNET UND WENN SICHERHEITSVERRIEGELUNG
ÜBERBRÜCKT IST. NICHT, DEM STRAHL AUSSETZEN.
VARO! Avattaessa ja suojalukitus ohitettaessa olet alttiina
näkyvättömälle lasersäteilylle. Älä katso äteeseen.

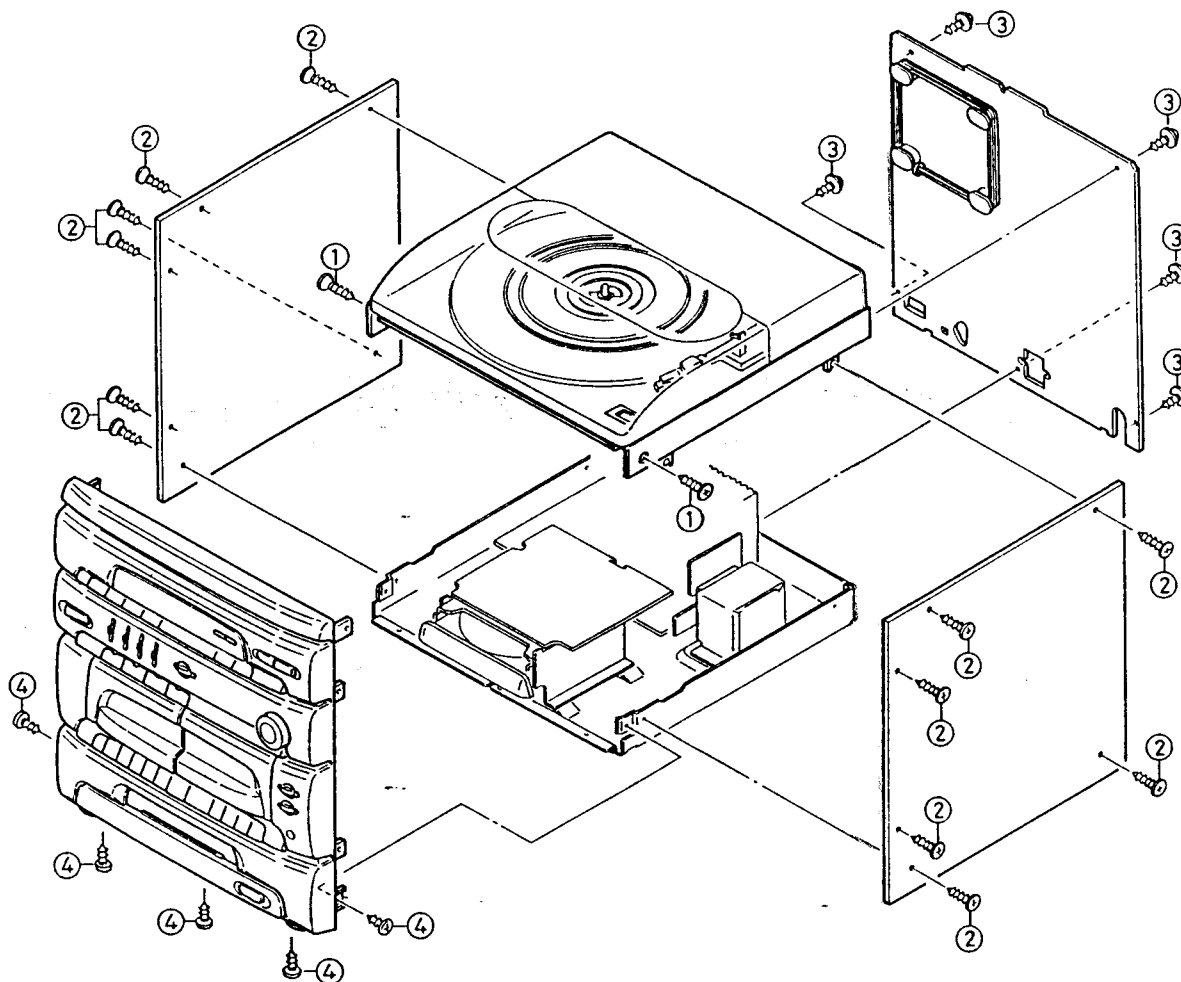


REMOVAL AND INSTALLATION

- Disconnect the power cord's plug from the electrical outlet.
- All wiring should be returned to the original position after work is completed.
- First have ready many the new FIXERS (614 129 2496) for replacement.
- Arrange the lead wires so that they are not near the heat sink.

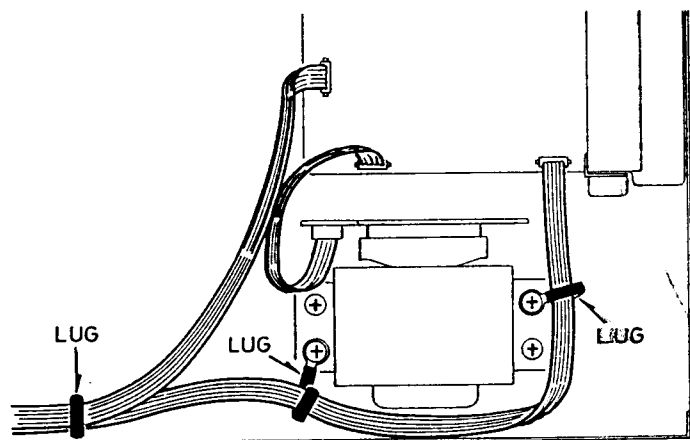
CABINET

- Remove the 2 turntable mounting screws. (①)
- Remove the 12 slide panel mounting screws. (②)
- Remove the 5 rear panel mounting screws. (③)
- Remove the 5 front panel mounting screws. (④)



b. WIRING LAYOUT

- Power Transformer



TAPE DECK ADJUSTMENTS

a. PREPARATIONS FOR ADJUSTMENTS

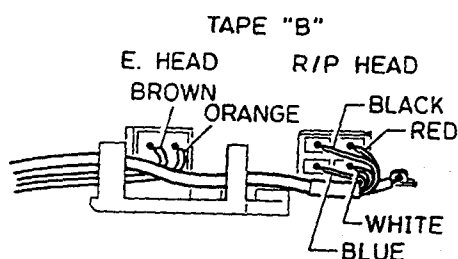
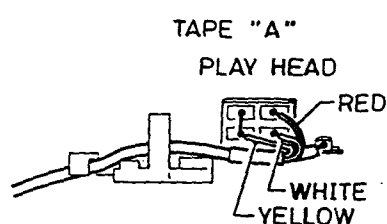
• Measuring instruments, tools.

- (1) Test tape MTT-114M (10 kHz)
TCW-211 (1,500 Hz) (Optional)
MTT-111 (3,000 Hz)
AC-224 (NORMAL)
- (2) Oscilloscope : (At least 10 MHz, dual channel)
- (3) Digital voltmeter (Input impedance 1 M Ω or more)
- (4) Automatic distortion analyzer or AC voltmeter
(- 80dB, input impedance 1M Ω or more)
- (5) AF-oscillator (400 Hz, 500 mV RMS)
- (6) Frequency counter (5 MHz or more)
- (7) Frequency counter, probe.
- (8) Screwdrivers (non-metallic) for adjustments.

b. HEAD REPLACEMENT AND AZIMUTH ADJUSTMENT

(a) Head replacement

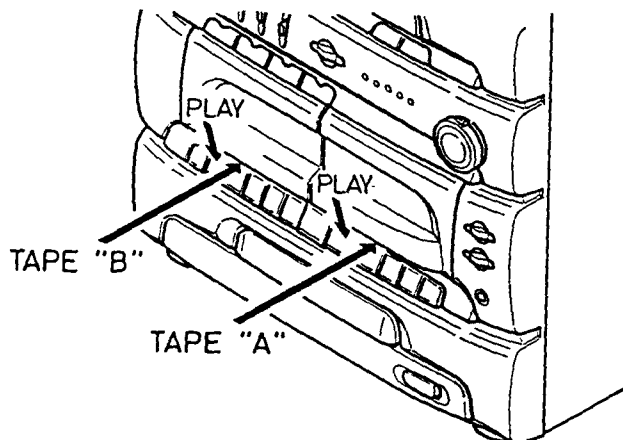
- (1) After replacement, demagnetize the heads by using a degausser.
- (2) Be sure to clean the heads before attempting to make any adjustments.
- (3) Be sure both channels (1 and 2) are the same level (Using a dual-channel oscilloscope).
- (4) All wiring should be returned to the original position after work is completed.



c. TAPE "A" & "B" HEAD AZIMUTH ADJUSTMENT

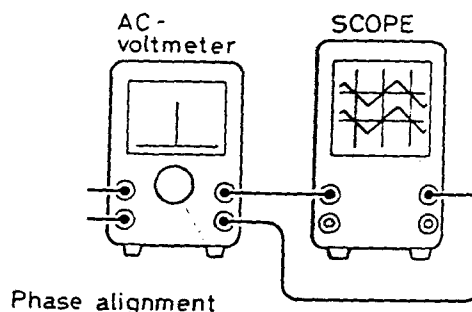
(a) Head adjustment

- (1) Load a test tape in Tape Deck "A" (MTT-114N, etc.: 10 kHz) for azimuth adjustment.
- (2) Press the PLAY (▶) button.
- (3) Use a flat-tip (-) screwdriver to turn the screw for normal azimuth adjustment so that the left and right outputs are maximized at the same phase during playback.
- (4) Press the STOP button.
- (5) Repeat procedure for Tape Deck "B".
- (6) After completion of the adjustment, use threadlock (TB1401B) to secure the azimuth-adjustment screws.



b) Phase alignment

- 1) Prepare a dual-channel oscilloscope.
- 2) Set so that the left and right ranges of the oscilloscope are the same.
- 3) Play the test tape (MTT-114N, etc.: 10 kHz).
- 4) Adjust so that the waveforms for the left and right channels are in alignment, as shown in the illustration.

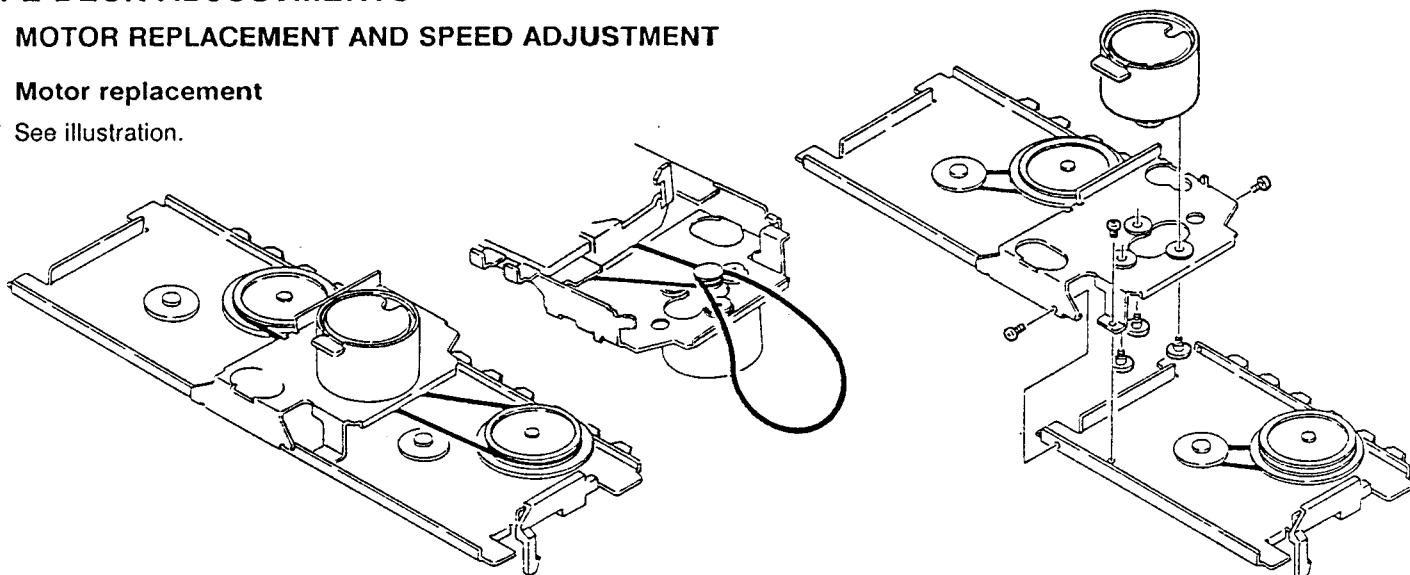


TAPE DECK ADJUSTMENTS

d. MOTOR REPLACEMENT AND SPEED ADJUSTMENT

(a) Motor replacement

- (1) See illustration.

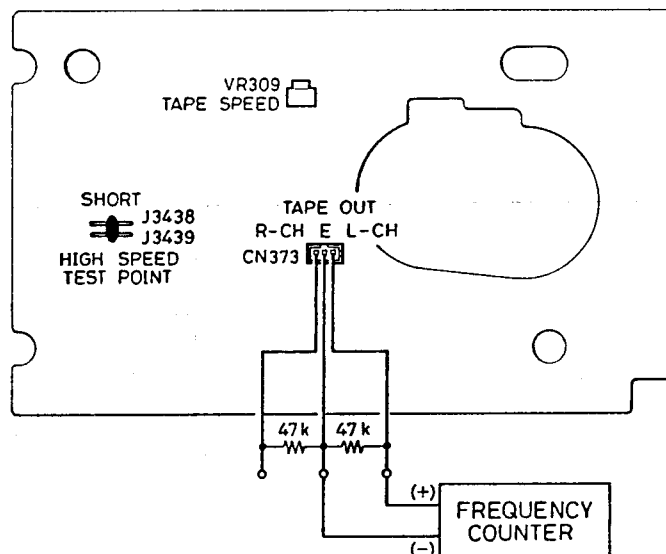


(b) Motor speed adjustments

- Make the adjustment near where the test tape finishes winding.

(c) Normal speed

- (1) Insert the test tape (MTT-111, etc. 3,000 Hz) into Tape Deck A.
 - (2) Press Tape Deck A's PLAY button.
 - (3) Adjust VR309 so that the frequency counter shows a reading of 3,000Hz.
 - (4) Press Tape Deck A's STOP button.
 - (5) Insert the test tape into Tape Deck B.
 - (6) Press Tape Deck B's PLAY button.
- Checking the frequency counter shows a reading of 3,000 Hz (- 40, + 40 Hz).
- (7) Press Tape Deck B's STOP button.



(d) High speed

- (1) Insert the test tape (TCW-211, etc. 1,500 Hz optional) into Tape Deck A.
- (2) Press Tape Deck A's PLAY button.
- (3) Set to the high-speed condition.
- (4) Short-circuit test points J3438 and J3439.
- (5) Checking the frequency counter reading is 3,000 Hz.
- (6) Press Tape Deck A's STOP button.
- (7) After the completion of the adjustment, remove the short-circuit between test points J3438 and J3439.

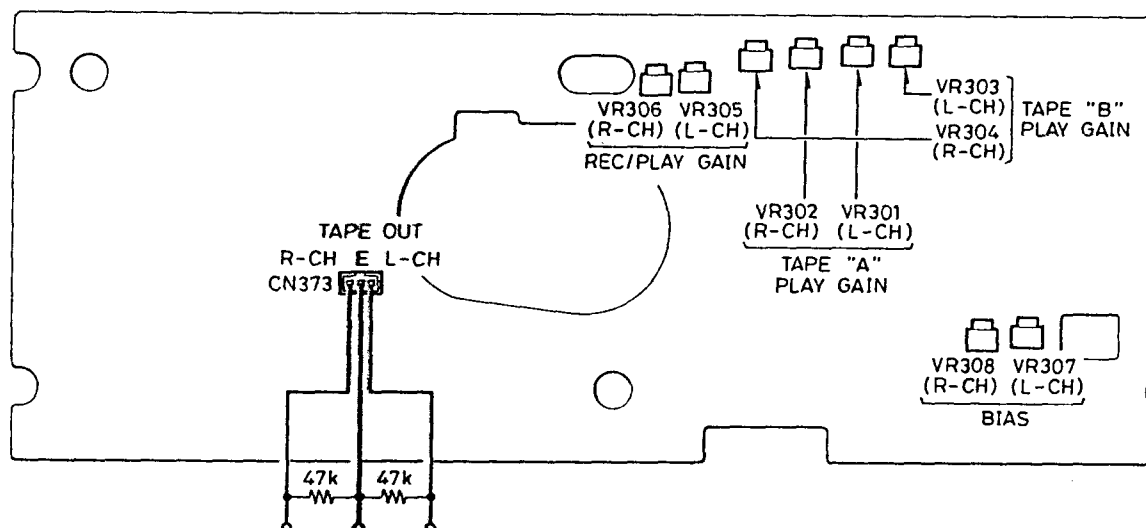
e. CHECKING THE MECHANISM TORQUES

- Clean the head, capstan and pinch roller before making any measurement.

Measurement	Take-up torque	Back tension	Tape tension
Cassette for measurement	PLAY: TW-2111A F.FWD/REW: TW-2231	PLAY: TW-2111A	Drive-power cassette TW-2412
PLAY	30~ 60 gr.cm	1.5~ 4.5 gr.cm	60 gr or more
F.FWD / REW	55~ 120 gr.cm	—	—

AMPLIFIER ADJUSTMENTS

- Make the following adjustments after first cleaning the head and checking the adjustment of the head azimuth.



Adjustment Item	Test tape	DOLBY NR SW.	Measuring Instrument	Input connection	Output connection	Adjustment location	Adjustment value
(a) Playback output adjustment	TCC-130 (Dolby tape)	OFF	AC-voltmeter	-	TAPE OUT (CN373)	(TAPE "A") SVR301 SVR302 (TAPE "B") SVR303 SVR304	580 mV
(b) Recording / Playback gain adjustment	AC-224 (Normal)	OFF	AC-voltmeter AF-oscillator	VIDEO - 24 dB, 1 kHz	TAPE OUT (CN373)	SVR305 SVR306	0 ± 1 dB
(c) Recording / Playback frequency response adjustment	AC-224 (Normal)	OFF	AC-voltmeter AF-oscillator	VIDEO - 44 dB, 1 kHz, 10 kHz	TAPE OUT (CN373)	SVR307 SVR308	0 ± 1 dB at 1 kHz and 10 kHz

(a) Playback output adjustment

(1) TAPE "A"

Play the test tape and adjust SVR301 (L-CH) and SVR302 (R-CH) so that playback output becomes 580mV.

(2) TAPE "B"

Play the test tape and adjust SVR303 (L-CH) and SVR304 (R-CH) so that playback output becomes 580mV.

(b) Recording / Playback gain adjustment

DOLBY NR switch : OFF

Input signal : - 24 dB, 1 kHz

Tape to be used : NORMAL (AC-224, etc.)

- Introduce input signals to the VIDEO terminals, and with the unit in the REC, PAUSE mode.
- Record the input signal.
- Press the REWIND button and rewind the tape to the beginning of the recording just made.
- Press the PLAY button.
- Adjust SVR305 (L-CH) and SVR306 (R-CH) so that the recording and playback output level difference become ± 1 dB.
- Repeat steps (1) to (5).

(c) Recording / Playback frequency response adjustment

DOLBY NR switch : OFF

Input signal : - 44 dB, 1 kHz, 10 kHz

Tape to be used : NORMAL (AC-224, etc.)

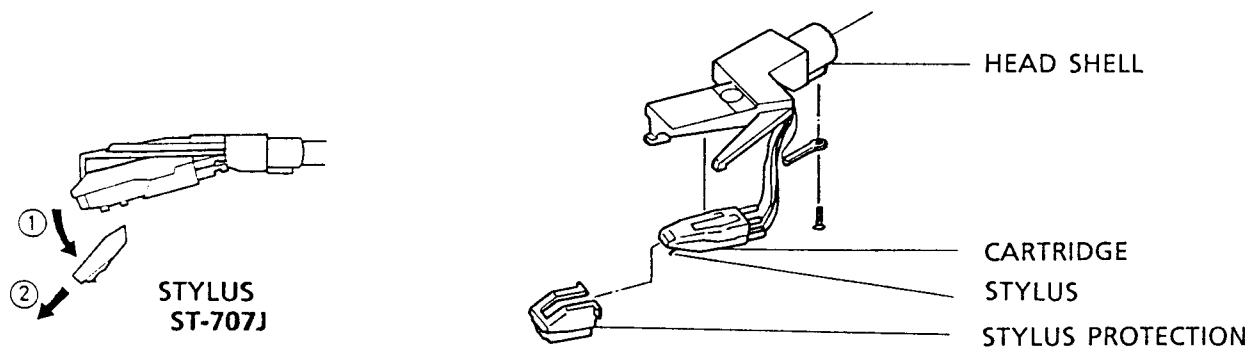
- Introduce input signals to the VIDEO terminals.
- With the unit in the REC mode.
Record these input signals (1 kHz \rightarrow 10 kHz \rightarrow 1 kHz \rightarrow 10 kHz).
- Press the REWIND button and rewind the tape to the beginning of the recording just made.
- Press the PLAY button.
- Adjust SVR307 (L-CH) and SVR308 (R-CH) so that the 10 kHz and 1 kHz output level difference become ± 1 dB.
- Repeat steps (1) to (5).

REPLACEMENT OF STYLUS

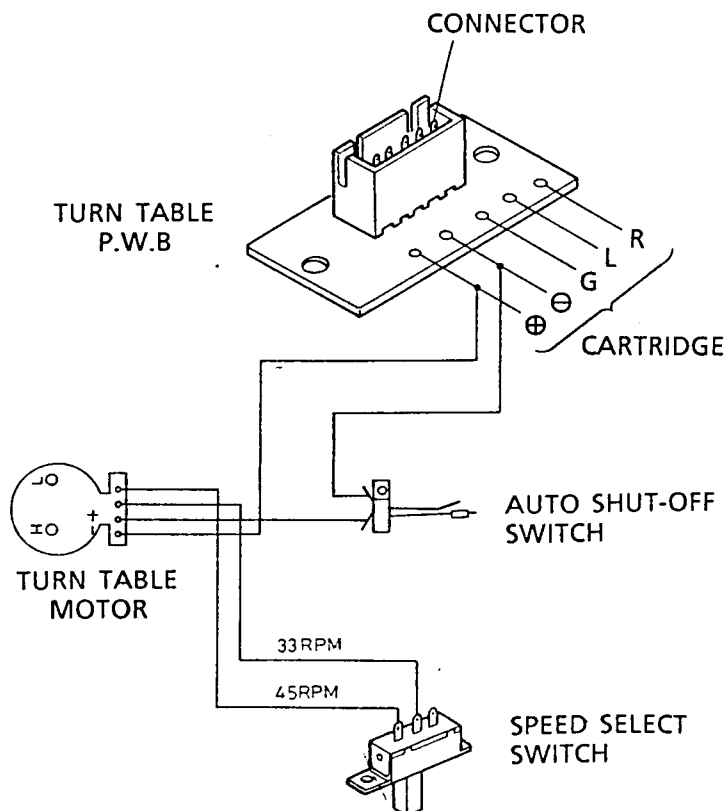
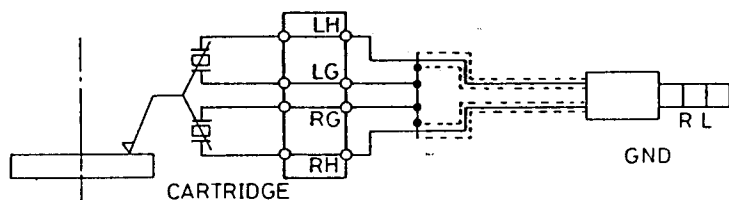
After a long period off use or when an inferior sound is obtained, the stylus assembly should be replaced with a new one.

To remove the stylus assembly, pull it downwards gently.

To mount the new one, re-assemble in reverse order.

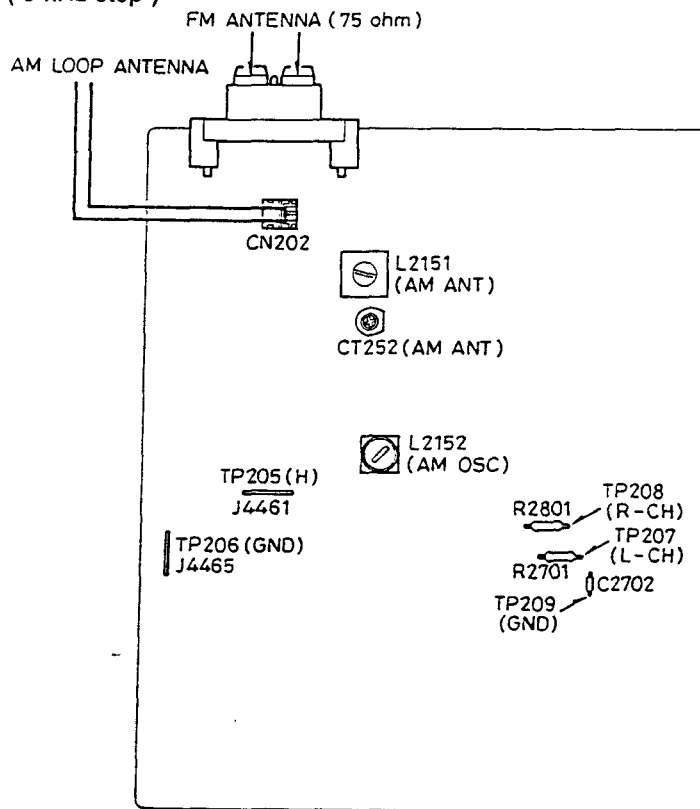


SCHEMATIC & WIRING DIAGRAM (TURNTABLE)



TUNER ADJUSTMENTS

- Use a plastic screw driver for adjustments.
- Speaker impedance : 4 ohm
- Standard Output : 500 mW
- FM MODE switch : STEREO
- AM STEP CHANNEL Switch : 9 kHz
- TUNING FM : 87.5 - 108.0 MHz (50 kHz step)
AM : 531 - 1,602 kHz (9 kHz step)



a. CHECKING THE FM BAND

Modulation : 1 kHz, Dev. \pm 22.5 kHz
FM antenna : Dummy 75 ohm unbalance

Step	Adjusting Circuit	Connections		SG Frequency	Position of tuning dial	Adjustment	VTVM Oscilloscope or DC voltmeter
		Input	Output				
1	Tuning coverage	---	Connect to Digital DC voltmeter TP 205 (H), TP 206 (G)	87.5 MHz	Low end	---	(1.0 ~ 2.0V)
2				108.0 MHz	High end	---	(less than 8.5V)
3	Tracking	Connect to FM Antenna Terminal	Connect to VTVM, Speaker output	90.1 MHz	90.1 MHz	---	Max.
4				106.1 MHz	106.1 MHz	---	

b. CHECKING THE AM BAND

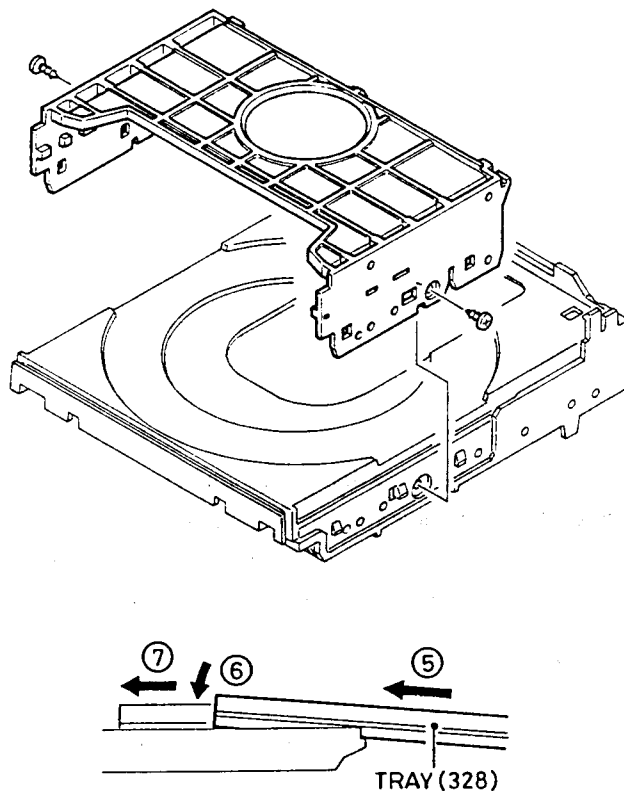
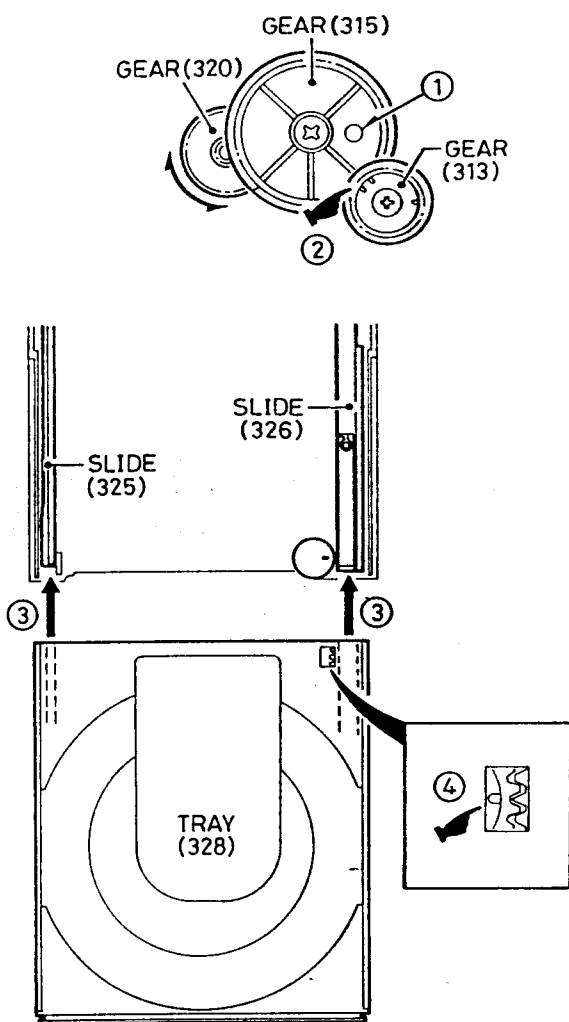
SG MODULATION : 1,000Hz, 30% IRE LOOP ANTENNA

Step	Adjusting Circuit	Connections		SG Frequency	Position of tuning dial	Adjustment	VTVM Oscilloscope or DC voltmeter
		Input	Output				
1	Tuning coverage	---	Connect Digital DC voltmeter to TP 205 (H), TP 206 (G)	531 kHz	Low end	L2152	(1.15 ~ 1.25 V)
2				1602 kHz	High end	---	(less than 9.0V)
3	Tracking	Connect AM SG to Test Loop	Connect to VTVM speaker output	612 kHz	612 kHz	L2151	---
4				1404 kHz	1404 kHz	CT252	

CD PLAYER MECHANISM ADJUSTMENTS

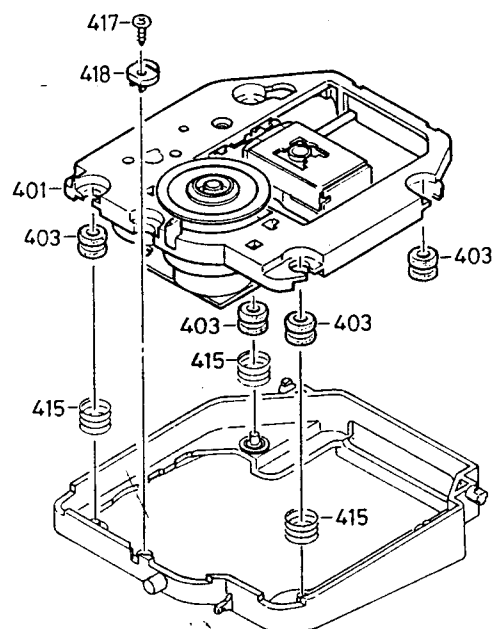
a. INSTALLING THE DISC TRAY

- (1) Join together the gear (315) and chassis holes. (①)
- (2) Attach the gear (313) rib as indicated in the diagram. (②)
- (3) Fit the disc tray into the grooves of slide (325) and slide (326). (③)
- (4) Fit together the gear rib of the disc tray and the teeth in the center. (④)
- (5) Attach the disc tray as indicated in the diagram. (⑤ - ⑦)



b. DISASSEMBLY OF THE CD PLAYER MECHANISM

(a) CD Mechanism



CD PLAYER MECHANISM ADJUSTMENTS

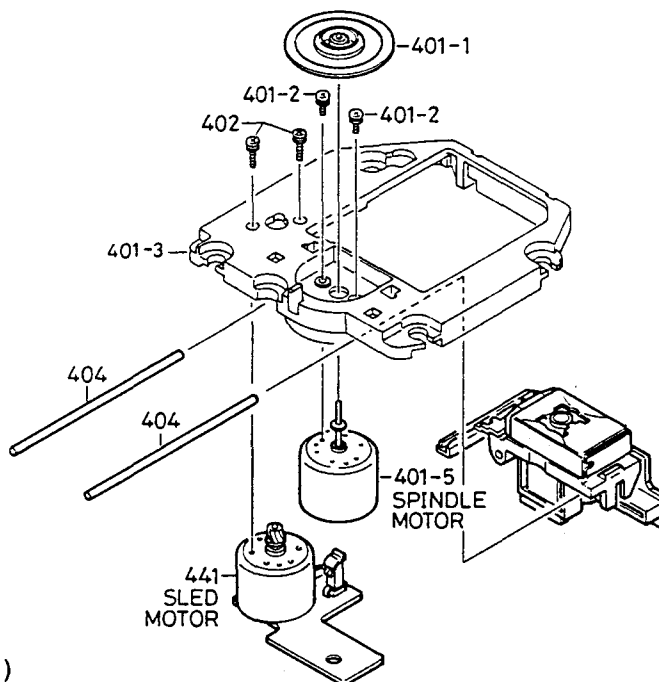
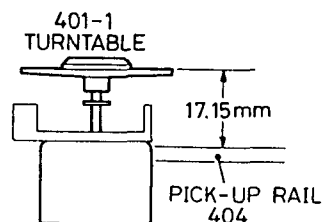
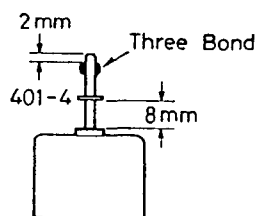
(b) Replacement of the spindle motor

- First, prepare the new turntable (401-1) and new special washer (401-4) for replacement.

The removed turntable will be deformed by the heat of the soldering iron, and cannot be reused.

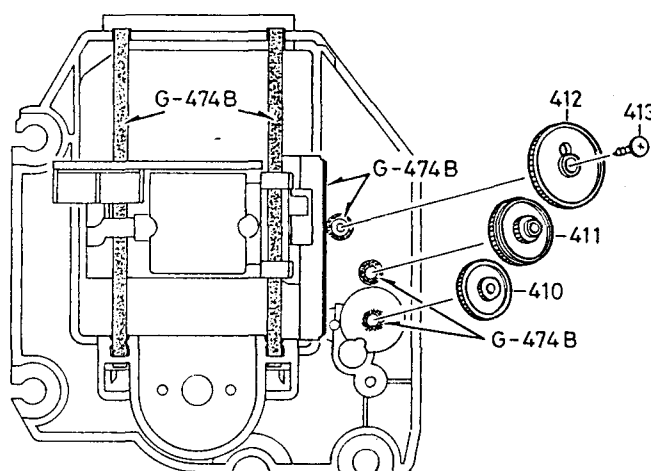
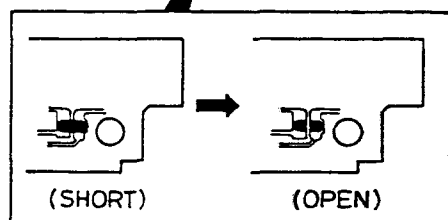
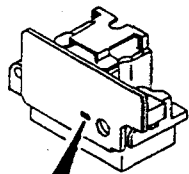
- Prepare dial-type calipers.

- The attached bonding material can be dissolved by using a 60W soldering iron to heat the shaft at the upper part of the turntable for about one minute.
- The turntable can then be removed from the shaft by very carefully applying force upward at the center of the lower surface of the turntable.
- Remove the two screws (401-2) and remove the spindle motor (401-5).
- Attach the special washer (401-4) to the spindle motor.
- Clean the spindle motor's shaft.
To clean them, use a soft cloth soaked in isopropyl alcohol.
- Apply a small amount of a mixture of the "Three Bond 2001" and "2015F" bonding materials to the motor's shaft.
- Install the turntable as shown in the figure.
- Secure the turntable by pressing gently.
Be sure to wipe away (by using a piece of cloth, or similar material) any bonding material coming out of the hole.



(c) Replacing the pick-up

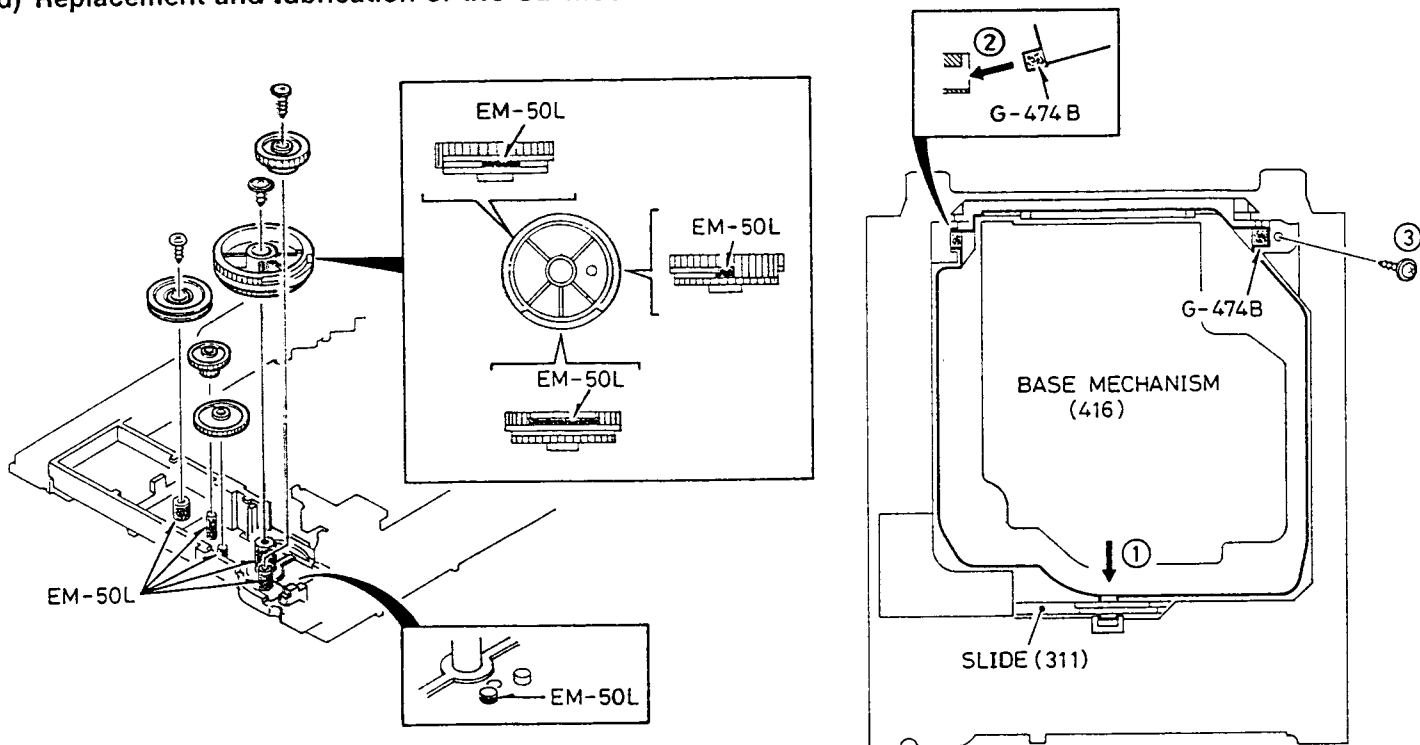
- Insert the pick-up rails (404) into the base chassis. (401-3)
- If the latches (x 2) of the base chassis (401-3) are missing when the pick-up rails have been installed, first wipe the tips of the rails with alcohol.
- After the pick-up has been replaced, apply grease (FLOIL G-474B) to the sections.
- The pick-up P.W.Board pattern is "shorted", as shown in the figure, so that the new pick-up will not be susceptible to the effects of static.
- Set the pattern to "open" after the pick-up has been replaced.



(BE SURE AT THIS TIME,
NOT TO TOUCH ANY OTHER PART.)

CD PLAYER MECHANISM ADJUSTMENTS

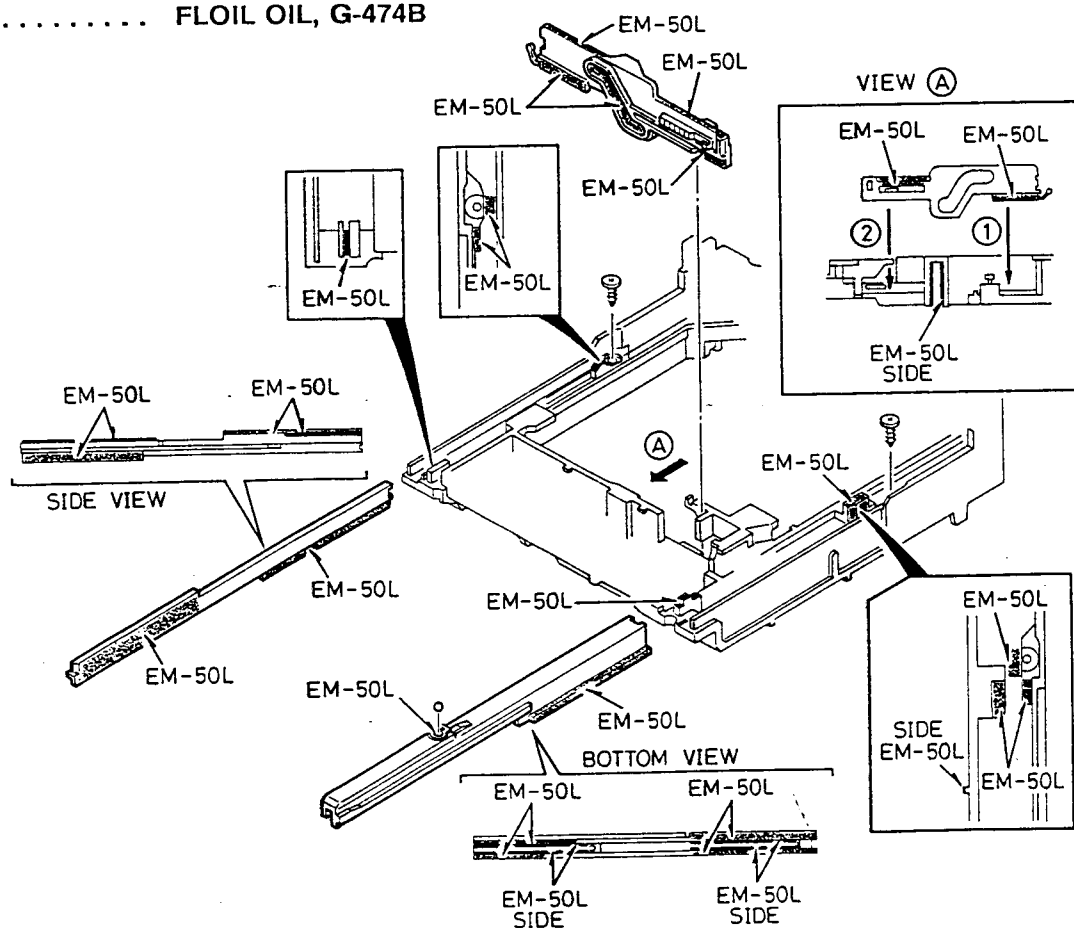
(d) Replacement and lubrication of the CD mechanism



Note :

EM-50 MOLYKOTE, EM-50L

G-474B FLOIL OIL, G-474B



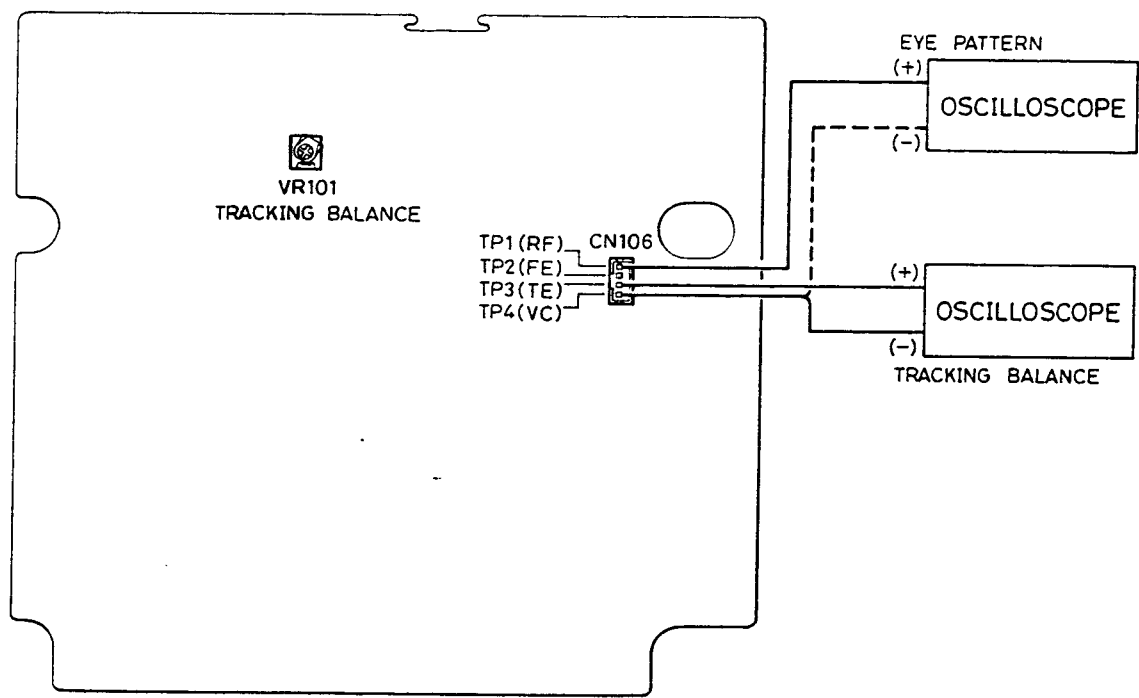
CD PLAYER ADJUSTMENTS

a. PREPARATIONS

(a) Measuring Instruments, tools and filter

- (1) Test disc. : YEDS 18 (SONY) or etc.
- (2) Oscilloscope : SS5711 (10 MHz or dual-phenomenon)
or Memoryscope : DSS6521 (Storagescope)
- (3) Screwdrivers (non-metallic) for adjustments

b. PARTS LOCATION



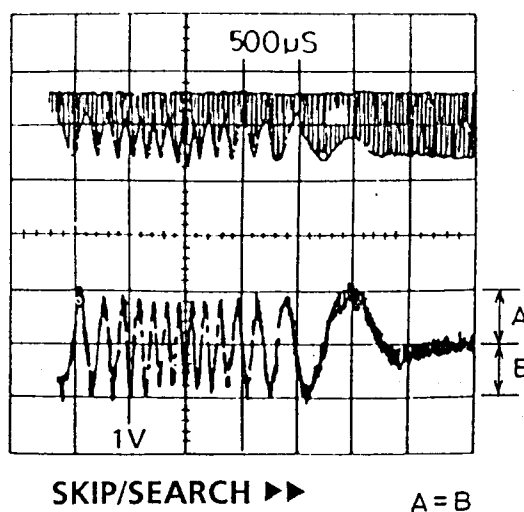
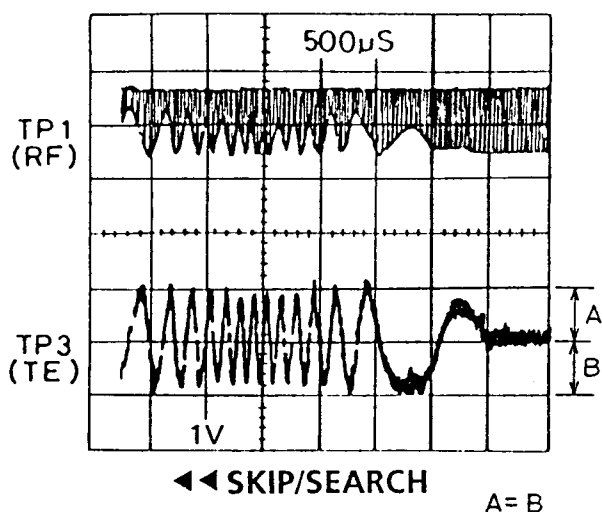
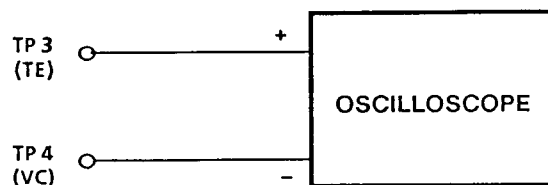
Adjustment Item	Measuring Instrument	Input connection	Output connection	Adjustment location	Adjustment value
(a) Tracking balance	Oscilloscope	—	TP 3 : TE TP 4 : VC	VR101	Waveform symmetry A = B
(b) Checking the "eye" pattern	Oscilloscope	—	TP 1 : RF TP 4 : VC	—	Check be sure that the "eye" pattern is at the center of the waveform and that the diamond shape is clearly defined

CD PLAYER ADJUSTMENTS

c. ADJUSTMENTS

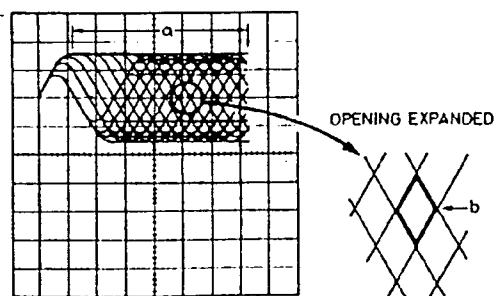
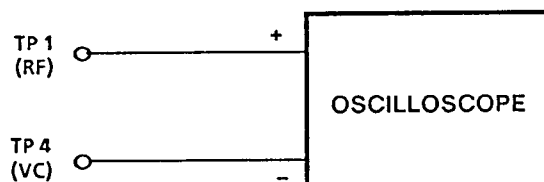
(a) Tracking balance adjustment

- (1) Connect an oscilloscope to TP3 (TE) and TP4 (VC).
- (2) Set the test disc.
- (3) Repeatedly press the CD SKIP / SEARCH button.
- (4) PLAY / PAUSE switch push ON.
- (5) Adjust VR101 so that the oscilloscope's waveform is symmetrical, as shown in the illustration.
- (6) Switch OFF the POWER.



(b) Checking the "eye" pattern

- (1) Switch "ON" the POWER.
- (2) Connect an oscilloscope to TP1 (RF) and TP4 (VC).
- (3) Load the test disc.
- (4) PLAY switch push ON.
- (5) Check to be sure that the "eye" pattern is at the center of waveform and that the diamond shape is clearly defined.
- (6) Press the STOP button.
- (7) Switch "OFF" the POWER.





PARTS LIST

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol Δ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified Δ , use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

CAUTION: Regular type resistors and capacitors are not listed. To know those values, refer to the schematic diagram.

PACKING & ACCESSORIES

Ref. No.	Part No.	Description
	614 267 8916	CARTON CASE, SET
	614 264 2979	CUSHION, TOP
	614 264 2986	CUSHION, BOTTOM
	645 008 5581	POLY SHEET, 1650X550MM
	614 267 9012	INSTRUCTION MANUAL
	645 006 1103	REMOTE CONTROL, RB-X850
	645 006 4654	BATTERY COVER, REMOTE CONTROL
	614 224 3480	LABEL, STYLUS
	614 245 0055	ANTENNA, LEAD

Ref. No.	Part No.	Description
45	614 270 8385	BRACKET-E, TAPE MECHANISM, UPPER
46	614 263 8316	BUTTON, FUNCTION
47	614 263 8309	BUTTON, POWER
48	614 263 8279	BUTTON, TIME/REPEAT. PRESET UP/MEMORY/BAND
49	614 263 8286	BUTTON, SKIP/SEARCH, DOWN/UP
50	614 264 0128	BUTTON, RANDOM/INTRO
51	614 263 8293	BUTTON, PLAY, PAUSE/STOP
52	614 263 8323	BUTTON, BASSXPANDER
	614 129 4971	FIXER, LEAD FIX
	614 231 6832	LABEL, SAFETY, LASER CLASS
	614 224 3688	LABEL, SAFETY, LASER
	614 208 0986	CUSHION, 10X40MM, LEAD MTG.

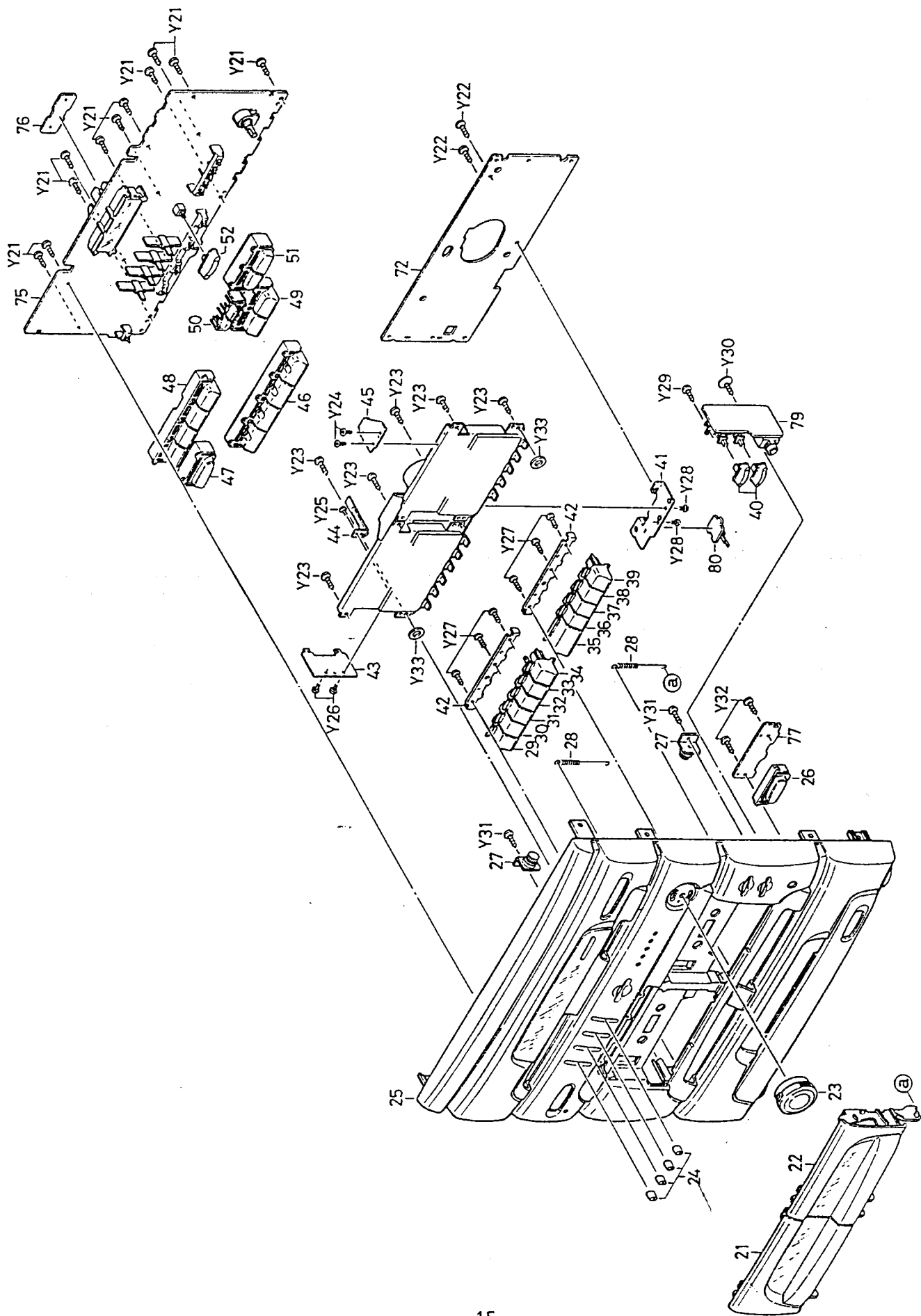
CABINET & CHASSIS

Ref. No.	Part No.	Description
1	614 263 8620	PANEL, SIDE, SIDE(L)
2	614 263 8637	PANEL, SIDE, SIDE(R)
3	614 267 8657	ASSY, PANEL REAR
4	614 267 8626	ASSY, CABINET BOTTOM
5	614 263 8491	DEC, WINDOW, CD TRAY
6	614 129 1901	FIXER, AC POWER CORD
7	614 264 0180	HOLDER MECHANISM, CD, RIGHT
8	614 264 0173	HOLDER MECHANISM, CD, LEFT
9	614 264 0197	MOUNTING BRACKET-E, JOINT, FRONT PANEL
21	614 264 2900	ASSY, LID, CASSETTE, TAPE DECK "B"
22	614 264 2917	ASSY, LID, CASSETTE, TAPE DECK "A"
23	614 263 8576	KNOB, ROTARY, VOLUME
24	614 263 8569	KNOB, SLIDE, GRAPHIC EQUALIZER
25	614 264 2924	ASSY, PANEL FRONT
26	614 263 8347	BUTTON, OPEN/CLOSE
27	614 270 8309	GEAR ASSY, CASSETTE LID
28	614 264 0234	SPRING WIRE, TAPE DECK OPEN
29	614 263 8354	BUTTON, RECORD, TAPE "B"
30	614 263 8361	BUTTON, PLAY, TAPE "B"
31	614 263 8378	BUTTON, REW, TAPE "B"
32	614 263 8385	BUTTON, F. FWD, TAPE "B"
33	614 263 8392	BUTTON, STOP/EJECT, TAPE "B"
34	614 263 8408	BUTTON, PAUSE, TAPE "B"
35	614 263 8415	BUTTON, PLAY, TAPE "A"
36	614 263 8422	BUTTON, REW, TAPE "A"
37	614 263 8439	BUTTON, F. FWD, TAPE "A"
38	614 263 8446	BUTTON, STOP/EJECT, TAPE "A"
39	614 263 8453	BUTTON, PAUSE, TAPE "A"
40	614 263 8330	BUTTON, DOLBY/DUBBING SPEED
41	614 270 8392	BRACKET-E, TAPE MECHANISM, LOWER
42	614 264 0203	MOUNTING BRACKET-E, TAPE MECHANISM BUTTON
43	614 270 8378	BRACKET-E, TAPE MECHANISM, LEFT
44	614 270 8507	SPRING, PLATE, RECORD

FIXING PARTS

Ref. No.	Part No.	Description
Y01	614 270 0938	SPECIAL SCREW 3X9MM, SIDE PANEL
Y02	614 270 0938	SPECIAL SCREW 3X9MM, TURNTABLE
Y03	411 027 1701	SCR S-TPG BIN 3X10MM, REAR PANEL
Y04	411 020 8905	SCR S-TPG BRZ+FLG 3X10MM, FRONT PANEL
Y05	411 021 6405	SCR S-TPG BIN 3X8MM, TUNER/AMP PWB
Y06	411 027 3101	SCR S-TPG BIN 3X8MM, CD PWB
Y07	411 001 4209	SCR S-TPG BIN 4X8MM, POWER TRANSFORMER
Y08	411 021 6405	SCR S-TPG BIN 3X8MM, CD PWB BRACKET
Y09	411 021 6405	SCR S-TPG BIN 3X8MM, CD MECHANISM BRACKET
Y10	411 021 6405	SCR S-TPG BIN 3X8MM, TUNER/AMP SOCKET
Y11	411 021 6405	SCR S-TPG BIN 3X8MM, BOTTOM CABINET, LUG MTG.
Y21	411 021 3503	SCR S-TPG BIN 3X10MM, FRONT PWB
Y22	411 021 6405	SCR S-TPG BIN 3X8MM, TAPE DECK PWB
Y23	411 021 3503	SCR S-TPG BIN 3X10MM, TAPE MECHANISM
Y24	411 028 2905	SCR S-TPG PAN 2X4MM, TAPE MECHANISM
Y25	411 028 2905	SCR S-TPG PAN 2X4MM, RECORD/PLAY CHANGE
Y26	411 028 2905	SCR S-TPG PAN 2X4MM, TAPE MECHANISM BRACKET
Y27	411 156 2105	SCR S-TPG BIN 2.3X6MM, TAPE MECHANISM BUTTON

EXPLODED VIEW (CABINET & CHASSIS)



PARTS LIST

Ref. No.	Part No.	Description
Y28	411 028 2905	SCR S-TPG PAN 2X4MM, TAPE MECHANISM BRACKET
Y29	411 021 3503	SCR S-TPG BIN 3X10MM, DOLBY/DUBBING SPEED PWB
Y30	412 005 2307	SPECIAL SCREW, 3X10MM WITH WASHER
Y31	411 021 3503	DOLBY/DUBBING SPEED PWB
Y32	411 021 3503	SCR S-TPG BIN 3X10MM, CASSETTE GEAR
Y33	412 011 5903	SCR S-TPG BIN 3X10MM, CD-OPEN/CLOSE SWITCH PWB
		SPECIAL WASHER, FIBER, 3X10X0.5MM, TAPE MECHANISM

ELECTRICAL PARTS

Ref. No.	Part No.	Description
61	△645 009 1216	TRANSFORMER, POWER
62	△614 250 6585	POWER CORD, AC
or	△614 256 5308	POWER CORD, AC
63	△423 016 9902	FUSE, 250V, 0.8A (FU401)
64	△614 130 0382	LUG, CD PWB
65	△614 130 0382	LUG, POWER TRANSFORMER
66	614 130 0382	LUG, BOTTOM CABINET
	614 129 9082	LUG, C2999

TUNER / AMP. P.W.BOARD ASSY

Ref. No.	Part No.	Description
71	614 267 1337	ASSY, PWB, TUNER/AMP
BPF21	614 252 1045	FILTER, LC, FM
C2154	403 082 0201	POLYPRO 470P J 100V
CF221	614 030 5074	I.F FILTER, RED, FM
CF222	614 030 5074	I.F FILTER, RED, FM
CF231	614 246 0849	FILTER, 450 KHZ
CF233	614 256 8613	FILTER, XTAL
CN202	614 020 8832	SOCKET, 2P
CN203	645 006 7730	TERMINAL, ANTENA, 2P (K & K)
CN204	614 229 3430	PLUG, 5P
CN205	645 004 2911	PLUG, 5P
CN401	614 020 6562	SOCKET, 4P
CN403	614 035 4942	SOCKET, 5P
CN411	645 006 0861	PLUG, 7P
CN412	645 005 8158	PLUG, 10P
CN413	645 005 9292	PLUG, 5P
CN414	614 035 4942	SOCKET, 5P
CN415	645 012 2743	SOCKET, 9P
CN451	614 260 7411	SOCKET, PHONO/VIDEO
CN452	614 020 1246	SOCKET, 5P
CN453	614 252 9126	TERMINAL, SPEAKER
CN480	614 265 1506	ASSY, WIRE
CN482	614 265 1513	ASSY, WIRE
CN483	614 265 1520	ASSY, WIRE
CN491	614 035 4942	SOCKET, 5P
CT252	614 007 6356	TRIMMER, 11PF
D2101	407 157 8109	DIODE, SVC211-B
D2102	407 157 8109	DIODE, SVC211-B
D2103	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176

Ref. No.	Part No.	Description
D2104	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
D2151	407 091 5004	VARACTOR DI SVC321SPA-C-2
D2152	407 091 5004	VARACTOR DI SVC321SPA-C-2
D2451	407 007 9904	DIODE GMA01(D2451, D2453)
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
D4102	407 004 9105	DIODE DSF10C(D4102-D4105)
D4106	407 049 6602	ZENER DIODE GZA13Y
D4107	407 007 9904	DIODE GMA01(D4107, D4108)
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
D4109	407 049 6602	ZENER DIODE GZA13Y
D4110	407 050 6301	ZENER DIODE GZA6.2Z
D4111	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
D4112	407 050 7407	ZENER DIODE GZA8.2Z
D4113	△407 141 2809	DIODE IN5402
D4114	△407 141 2809	DIODE IN5402
D4115	△407 141 2809	DIODE IN5402
D4116	△407 141 2809	DIODE IN5402
D4901	407 050 5502	ZENER DIODE GZA5.6Y
HS401	△614 264 0241	HEAT SINK
HS402	△614 264 0159	HEAT SINK
IC211	409 292 5807	IC TA8176SN
IC231	409 335 5603	IC LA1831-N
IC402	△409 245 5601	IC LA4705
IC452	409 051 2801	IC TC4052BP
or	409 003 9407	IC BU4052B
or	409 030 5700	IC MC14052BCP
L2101	614 034 5988	VHF COIL
L2103	645 002 1534	INDUCTOR, 8.2U K
L2151	614 240 0913	TRANSFORMER, RF, AM ANT
L2152	614 255 5767	TRANSFORMER, RF, AM OSC
LG401	614 217 7273	LUG
PR402	△645 006 2360	PROTECTOR, IC 1.0A 50V
Q2302	405 019 3705	TR 2SC536-G-AUD-SPA
Q2303	405 019 3705	TR 2SC536-G-AUD-SPA
Q2304	405 019 3705	TR 2SC536-G-AUD-SPA
Q2451	405 019 3705	TR 2SC536-G-AUD-SPA
Q2453	405 004 4601	TR 2SA608-F-SPA
Q2454	405 004 4601	TR 2SA608-F-SPA
Q4101	405 053 0906	TR 2SD1688-Q
or	405 022 7707	TR 2SD1688-R
or	405 022 7806	TR 2SD1688-S
Q4102	405 008 2405	TR 2SB698-F
Q4103	405 019 3705	TR 2SC536-G-AUD-SPA
Q4104	405 019 3705	TR 2SC536-G-AUD-SPA
Q4105	405 019 3705	TR 2SC536-G-AUD-SPA
Q4107	405 022 8001	TR 2SD1682-S
or	405 043 3504	TR 2SD1682-R
or	405 022 8209	TR 2SD1682-T
Q4108	405 022 8001	TR 2SD1682-S
or	405 043 3504	TR 2SD1682-R
or	405 022 8209	TR 2SD1682-T
Q4109	405 022 8001	TR 2SD1682-S
or	405 043 3504	TR 2SD1682-R
or	405 022 8209	TR 2SD1682-T

PARTS LIST

TAPE DECK P.W.BOARD ASSY

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
Q4110	405 004 4601	TR 2SA608-F-SPA	72	614 265 1209	ASSY,PWB,TAPE DECK
Q4111	405 019 3705	TR 2SC536-G-AUD-SPA	C3303	403 058 9108	POLYESTER 0.018U J 50V
Q4112	405 022 8001	TR 2SD1682-S	C3304	403 058 1102	POLYESTER 1500P K 50V
or	405 043 3504	TR 2SD1682-R	CN301	645 005 8141	PLUG,9P
or	405 022 8209	TR 2SD1682-T	CN302	645 005 9292	PLUG,5P
Q4113	405 000 3400	TR DTC114TS	CN303	645 004 2911	PLUG,5P
or	405 107 8704	TR BA1A4Z	CN304	645 004 2898	PLUG,3P
or	405 035 1600	TR RN1211	CN306	614 020 6562	SOCKET,4P
Q4114	405 000 2205	TR DTA144ES	or	614 223 9223	SOCKET,4P
or	405 003 7603	TR 2SA1345	CN307	614 020 6548	SOCKET,2P
or	405 001 1306	TR RN2204	or	614 223 9209	SOCKET,2P
Q4115	405 000 3400	TR DTC114TS	CN371	645 005 8110	PLUG,4P
or	405 037 0205	TR 2SC3860	CN372	645 006 0861	PLUG,7P
or	405 035 1600	TR RN1211	CN373	645 005 7373	PLUG,3P
Q4116	405 019 3705	TR 2SC536-G-AUD-SPA	D3101	407 007 9904	DIODE GMA01(D3101-D3107)
Q4701	405 019 3705	TR 2SC536-G-AUD-SPA	or	407 012 4406	DIODE 1SS133
Q4702	405 021 0600	TR 2SD1012-G-SPA	or	407 012 5809	DIODE 1SS176
Q4801	405 019 3705	TR 2SC536-G-AUD-SPA	D3109	407 007 9904	DIODE GMA01(D3109-D3114)
Q4802	405 021 0600	TR 2SD1012-G-SPA	or	407 012 4406	DIODE 1SS133
Q4901	405 019 3705	TR 2SC536-G-AUD-SPA	or	407 012 5809	DIODE 1SS176
Q4902	405 019 3705	TR 2SC536-G-AUD-SPA	D3115	407 005 4505	DIODE,DS442X
Q4903	405 000 6104	TR DTC144ES	D3301	407 053 8807	ZENER DIODE MTZ9.1B
or	405 078 3005	TR BA1L4M	or	407 070 8408	ZENER DIODE GZS9.1Y
or	405 001 0408	TR RN1204	IC351	409 270 2101	IC HA12136AT
Q4904	405 019 3705	TR 2SC536-G-AUD-SPA	or	409 199 1209	IC HA12136A
R4102	401 058 3706	OXIDE-MT 1K JA 1W	IC370	409 121 8702	IC LA3246
R4109	△402 046 7805	RESISTOR 1.2K J- 1/2W	IC371	409 207 1900	IC MLC4066B
R4112	△402 047 0102	RESISTOR 390 J- 1/2W	or	409 059 2605	IC UPD4066BC
R4113	△402 004 6208	FUSIBLE RES 3.3 J- 1/4W	or	409 003 9506	IC BU4066B
R4115	△402 004 6208	FUSIBLE RES 3.3 J- 1/4W	or	409 051 3501	IC TC4066BP
R4126	△402 004 8004	FUSIBLE RES 6.8 J- 1/4W	IC374	409 214 1900	IC CXA1298AP
R4711	△402 004 5300	FUSIBLE RES 2.2 J- 1/4W	L3300	614 212 0804	TRANSFORMER,OSC(85 KHZ)
R4712	△402 004 5300	FUSIBLE RES 2.2 J- 1/4W	L3501	614 252 4305	FILTER,LC,MPX(85 KHZ)
R4713	△402 046 7300	RESISTOR 100 J- 1/2W	L3551	614 252 4305	FILTER,LC,MPX(85 KHZ)
R4811	△402 004 5300	FUSIBLE RES 2.2 J- 1/4W	L3700	645 004 0580	INDUCTOR,1M J
R4812	△402 004 5300	FUSIBLE RES 2.2 J- 1/4W	L3750	614 029 3142	MX COIL,TRAP(85 KHZ)
R4813	△402 046 7300	RESISTOR 100 J- 1/2W	or	614 029 3937	MX COIL,TRAP(85 KHZ)
S4101	614 244 8335	SWITCH,SLIDE, AM CHANNEL STEP	L3800	645 004 0580	INDUCTOR,1M J
X2301	614 246 0870	RESONATOR	L3850	614 029 3142	MX COIL,TRAP(85 KHZ)
	614 264 0166	HOLDER HEAT SINK,L (REF.NO.91)	or	614 029 3937	MX COIL,TRAP(85 KHZ)
	614 264 0807	HOLDER HEAT SINK,R (REF.NO.92)	Q3101	405 037 0205	TR 2SC3860
	411 024 6501	SCR S-TPG PAN+FLG 3X8MM,(REF:NO.93)	or	405 000 3400	TR DTC114TS
	411 024 6501	SCR S-TPG PAN+FLG 3X8 MM	or	405 035 1600	TR RN1211
	411 021 6405	SCR S-TPG BIN 3X8MM, HEAT SINK,TRANSISTOR	or	405 107 8704	TR BA1A4Z
	411 021 6405	SCR S-TPG BIN 3X8MM, MOTOR/TRANSISTOR	Q3102	405 019 3705	TR 2SC536-G-AUD-SPA
	411 021 6405	SCR S-TPG BIN 3X8MM, POWER TRANSISTOR	or	405 017 9709	TR 2SC3330-U
	411 159 6100	SCR S-TPG BRZ+FLG 2.6X10MM,POWER IC	or	405 011 8609	TR 2SC1740S-S
	411 021 6405	SCR S-TPG BIN 3X8MM, HEAT SINK,L/R	or	405 011 8500	TR 2SC1740S-R
			or	405 014 5209	TR 2SC2458-GR
			Q3103	405 004 4601	TR 2SA608-F-SPA
			or	405 004 5103	TR 2SA608-G-SPA
			or	405 006 1905	TR 2SA933S-S
			or	405 006 1806	TR 2SA933S-R
			or	405 003 5401	TR 2SA1317-U
			or	405 002 1107	TR 2SA1048-GR
			Q3106	405 019 3705	TR 2SC536-G-AUD-SPA
			or	405 017 9709	TR 2SC3330-U
			or	405 011 8609	TR 2SC1740S-S
			or	405 011 8500	TR 2SC1740S-R
			or	405 014 5209	TR 2SC2458-GR
			Q3107	405 004 4601	TR 2SA608-F-SPA
			or	405 004 5103	TR 2SA608-G-SPA
			or	405 006 1905	TR 2SA933S-S
			or	405 006 1806	TR 2SA933S-R
			or	405 003 5401	TR 2SA1317-U
			or	405 002 1107	TR 2SA1048-GR

PARTS LIST

POEWR TRANSFORMER SECONDARY P.W.BOARD ASSY

Ref. No.	Part No.	Description
Q3108	405 004 4601	TR 2SA608-F-SPA
or	405 004 5103	TR 2SA608-G-SPA
or	405 006 1905	TR 2SA933S-S
or	405 006 1806	TR 2SA933S-R
or	405 003 5401	TR 2SA1317-U
or	405 002 1107	TR 2SA1048-GR
Q3300	405 019 4108	TR 2SC536-G-AUD-NP
or	405 018 0200	TR 2SC3331-U
Q3301	405 018 5403	TR 2SC3495
Q3302	405 019 4108	TR 2SC536-G-AUD-NP
or	405 018 0200	TR 2SC3331-U
Q3303	405 019 3705	TR 2SC536-G-AUD-SPA
or	405 017 9709	TR 2SC3330-U
or	405 011 8609	TR 2SC1740S-S
or	405 011 8500	TR 2SC1740S-R
or	405 014 5209	TR 2SC2458-GR
Q3304	405 019 3705	TR 2SC536-G-AUD-SPA
or	405 017 9709	TR 2SC3330-U
or	405 011 8609	TR 2SC1740S-S
or	405 011 8500	TR 2SC1740S-R
or	405 014 5209	TR 2SC2458-GR
Q3501	405 019 3705	TR 2SC536-G-AUD-SPA
or	405 017 9709	TR 2SC3330-U
or	405 011 8609	TR 2SC1740S-S
or	405 011 8500	TR 2SC1740S-R
or	405 014 5209	TR 2SC2458-GR
Q3551	405 019 3705	TR 2SC536-G-AUD-SPA
or	405 017 9709	TR 2SC3330-U
or	405 011 8609	TR 2SC1740S-S
or	405 011 8500	TR 2SC1740S-R
or	405 014 5209	TR 2SC2458-GR
Q3731	405 033 6805	TR 2SD1468S-S
or	405 021 0600	TR 2SD1012-G-SPA
or	405 016 2305	TR 2SC2878-B
Q3831	405 033 6805	TR 2SD1468S-S
or	405 016 2305	TR 2SC2878-B
or	405 021 0600	TR 2SD1012-G-SPA
R3901	△402 004 5607	FUSIBLE RES 22 J- 1/4W
S3000	614 248 9642	SWITCH,SLIDE,RECORD/PLAY
VR301	645 006 2599	VR,SEMI,20K N
VR302	645 006 2599	VR,SEMI,20K N
VR303	645 006 2599	VR,SEMI,20K N
VR304	645 006 2599	VR,SEMI,20K N
VR305	645 006 2575	VR,SEMI,10K N
VR306	645 006 2575	VR,SEMI,10K N
VR307	645 006 2605	VR,SEMI,200K N
VR308	645 006 2605	VR,SEMI,200K N
VR309	645 006 2582	VR,SEMI,2K N

POEWR TRANSFORMER PRIMARY P.W.BOARD ASSY

Ref. No.	Part No.	Description
73	614 267 1351	ASSY,PWB,POEWR TRANSFORMER,PRIMARY
FCLP1	△645 006 4760	HOLDER,FUSE
FCLP2	△645 006 4760	HOLDER,FUSE
TP401	△614 017 8203	TERMINAL BOARD
TP402	△614 017 8203	TERMINAL BOARD

Ref. No.	Part No.	Description
74	614 267 1368	ASSY,PWB,POWER TRANSFORMER, SECONDARY
CN400	614 020 6562	SOCKET,4P
PR401	△645 006 2360	PROTECTOR,IC 1.0A 50V
R4001	△402 044 6701	RESISTOR 0.47 J- 1/2W
R4002	△402 044 6701	RESISTOR 0.47 J- 1/2W

FRONT P.W.BOARD ASSY

Ref. No.	Part No.	Description
75	614 267 1559	ASSY,PWB,FRONT
	614 264 0142	FILTER COLOR,LCD BACK LIGHT, FILM,BLUE
	614 264 4164	FILTER COLOR,LCD BACK LIGHT, SHEET
C2407	403 262 8607	DL-ELECT 0.047F Z 5.5V
CM401	614 263 8521	HOLDER,LED
CM402	614 263 8538	HOLDER,LED
CM403	614 263 8545	HOLDER,LED
CM404	614 263 8552	HOLDER,LED
CN244	614 020 1246	SOCKET,5P
CN245	614 020 6579	SOCKET,5P
CN246	614 035 4959	SOCKET,6P
CN247	645 012 2729	SOCKET,7P
CN251	614 035 4911	SOCKET,2P
CN420	645 012 2750	SOCKET,10P
CN421	645 012 2729	SOCKET,7P
CN484	614 265 1537	ASSY,WIRE,5P
CN485	614 265 1544	ASSY,WIRE,5P
CN486	614 265 1551	ASSY,WIRE,7P
CN487	614 265 1568	ASSY,WIRE,10P
CN488	614 265 1575	ASSY,WIRE,7P
CN489	614 265 1582	ASSY,WIRE,6P
CN498	614 035 4911	SOCKET,2P
D2401	407 007 9904	DIODE GMA01(D2401-D2417)
or	407 012 4406	DIODE 1SS133
D2431	407 007 9904	DIODE GMA01(D2431,D2432)
or	407 012 4406	DIODE 1SS133
D4201	407 007 9904	DIODE GMA01(D4201-D4205)
or	407 012 4406	DIODE 1SS133
D4206	407 128 9104	LED SLP-190B-51-A
D4207	407 128 9104	LED SLP-190B-51-A
D4208	407 128 9104	LED SLP-190B-51-A
D4209	407 128 9104	LED SLP-190B-51-A
D4210	407 128 9104	LED SLP-190B-51-A
D4211	407 128 9104	LED SLP-190B-51-A
D4212	407 124 9702	LED SLP-290B-51-A
D4213	407 124 9702	LED SLP-290B-51-A
D4214	407 124 9702	LED SLP-290B-51-A
D4215	407 124 9702	LED SLP-290B-51-A
D4216	407 007 9904	DIODE GMA01(D4216-D4220)
or	407 012 4406	DIODE 1SS133
D4299	407 138 4700	PHOTO DIODE SPS-420-1
IC241	409 354 9101	IC TC9309F-112
IC421	409 053 0409	IC TC9153AP
IC422	409 003 0107	IC BA6125
L2401	614 028 4195	FILTER,33UH
LCD21	645 006 2193	LCD
LG402	614 217 7266	LUG
Q2401	405 004 4601	TR 2SA608-F-SPA
Q2402	405 019 3705	TR 2SC536-G-AUD-SPA
Q2403	405 019 3705	TR 2SC536-G-AUD-SPA
Q2404	405 019 3705	TR 2SC536-G-AUD-SPA
Q2405	405 016 5900	TR 2SC2999-E-SPA
Q2406	405 008 2405	TR 2SB698-F

PARTS LIST

CD P.W.BOARD ASSY

Ref. No.	Part No.	Description
Q2407	405 019 3705	TR 2SC536-G-AUD-SPA
Q2408	405 004 4601	TR 2SA608-F-SPA
Q2409	405 004 4601	TR 2SA608-F-SPA
Q4201	405 019 3705	TR 2SC536-G-AUD-SPA
Q4202	405 019 3705	TR 2SC536-G-AUD-SPA
Q4203	405 019 3705	TR 2SC536-G-AUD-SPA
Q4204	405 019 3705	TR 2SC536-G-AUD-SPA
Q4205	405 019 3705	TR 2SC536-G-AUD-SPA
Q4206	405 019 3705	TR 2SC536-G-AUD-SPA
Q4207	405 019 3705	TR 2SC536-G-AUD-SPA
Q4208	405 019 3705	TR 2SC536-G-AUD-SPA
Q4209	405 004 4601	TR 2SA608-F-SPA
Q4210	405 019 3705	TR 2SC536-G-AUD-SPA
Q4211	405 019 3705	TR 2SC536-G-AUD-SPA
Q4212	405 019 3705	TR 2SC536-G-AUD-SPA
Q4301	405 011 8609	TR 2SC1740S-S
Q4302	405 019 3705	TR 2SC536-G-AUD-SPA
Q4401	405 011 8609	TR 2SC1740S-S
Q4402	405 019 3705	TR 2SC536-G-AUD-SPA
R4209	△402 004 5607	FUSIBLE RES 22 J- 1/4W
S2401	614 240 1002	SWITCH,TACT,CD SKIP/SEARCH, TUNER "UP"
S2402	614 240 1002	SWITCH,TACT,CD SKIP/SEARCH, TUNER "DOWN"
S2403	614 240 1002	SWITCH,TACT,STOP
S2404	614 240 1002	SWITCH,TACT,PLAY/PAUSE
S2405	614 240 1002	SWITCH,TACT,RANDOM
S2406	614 240 1002	SWITCH,TACT,MODE
S2407	614 240 1002	SWITCH,TACT,REPEAT.RESET"UP"
S2408	614 240 1002	SWITCH,TACT,MEMORY
S2409	614 240 1002	SWITCH,TACT,AUX
S2410	614 240 1002	SWITCH,TACT,BAND
S2411	614 240 1002	SWITCH,TACT,INTRO
S2412	614 240 1002	SWITCH,TACT,CD
S2413	614 240 1002	SWITCH,TACT,TUNER
S2414	614 240 1002	SWITCH,TACT,TAPE
S2415	614 240 1002	SWITCH,TACT,POWER
S4201	645 006 1639	SWITCH,PUSH 2P-2T, BASSXPANDER
S4202	645 006 1769	SWITCH,ROTARY 1P-2T,VOLUME
VR421	645 006 1622	VR,SLIDE 200K BX1
VR422	645 006 1622	VR,SLIDE 200K BX1
VR423	645 006 1622	VR,SLIDE 200K BX1
VR424	645 006 1615	VR,SLIDE 50K WX2
X2401	614 229 2457	CRYSTAL,7.2 MHZ
or	614 204 0317	CRYSTAL,7.2 MHZ

Ref. No.	Part No.	Description
78	614 264 2689	ASSY,PWB,CD
CN101	645 005 9292	PLUG,5P
CN102	645 005 8127	PLUG,6P
CN103	614 227 7706	SOCKET,13P
CN104	645 006 0861	PLUG,7P
CN105	645 005 8127	PLUG,6P
CN106	645 005 8110	PLUG,4P
CN107	614 035 4942	SOCKET,5P
CN108	614 265 1605	ASSY,WIRE
D1001	407 053 6209	ZENER DIODE MTZ5.1A
D1002	407 007 9904	DIODE GMA01
or	407 012 4406	DIODE 1SS133
or	407 012 5809	DIODE 1SS176
IC101	409 342 6808	IC TA8191F
IC102	409 343 1406	IC TC9236AF
IC103	409 329 4209	IC UPD6379GR
IC104	409 317 5003	IC NJM3404AD
IC105	△409 317 8509	IC BA6398FP
IC106	△409 114 4803	IC LB1641
L1001	614 028 4256	FILTER,CHOKE 100UH
Q1001	405 004 4601	TR 2SA608-F-SPA (Q1001,Q1002)
or	405 003 5401	TR 2SA1317-U
or	405 006 1905	TR 2SA933S-S
or	405 006 1806	TR 2SA933S-R
or	405 002 1107	TR 2SA1048-GR
Q1003	405 009 5207	TR 2SB927-S
or	405 001 9302	TR 2SA1020-Y
Q1004	405 004 4601	TR 2SA608-F-SPA
or	405 003 5401	TR 2SA1317-U
or	405 006 1905	TR 2SA933S-S
or	405 006 1806	TR 2SA933S-R
or	405 002 1107	TR 2SA1048-GR
Q1005	405 019 3903	TR 2SC536-G-SPA (Q1005-Q1010)
or	405 017 9709	TR 2SC3330-U
or	405 011 8609	TR 2SC1740S-S
or	405 011 8500	TR 2SC1740S-R
or	405 014 5209	TR 2SC2458-GR
R1040	△402 048 2808	RESISTOR 18 J- 1W
VR101	645 006 5439	VR,SEMI,100K
or	614 250 7285	POTENTIOMETER,100K OHM
X1001	614 215 5554	RESONATOR,CERAMIC,8.46MHZ

LAMP P.W.BOARD ASSY

Ref. No.	Part No.	Description
76	614 267 1566	ASSY,PWB,LAMP
CN499	614 035 4911	SOCKET,2P
LP401	645 006 8676	LAMP,PILOT,12V,150MA

DOLBY/DUBBING SPEED SWITCH P.W.BOARD ASSY

Ref. No.	Part No.	Description
79	614 267 1344	ASSY,PWB,DOLBY/ DUBBING SPEED SWITCH
CN402	614 035 4942	SOCKET,5P
CN454	645 006 1141	JACK,PHONE
CN481	614 035 4942	SOCKET,5P
R4714	△402 046 7300	RESISTOR 100 J- 1/2W
R4814	△402 046 7300	RESISTOR 100 J- 1/2W
S4203	645 006 1097	SWITCH,PUSH,DOLBY/DUBBING SPEED

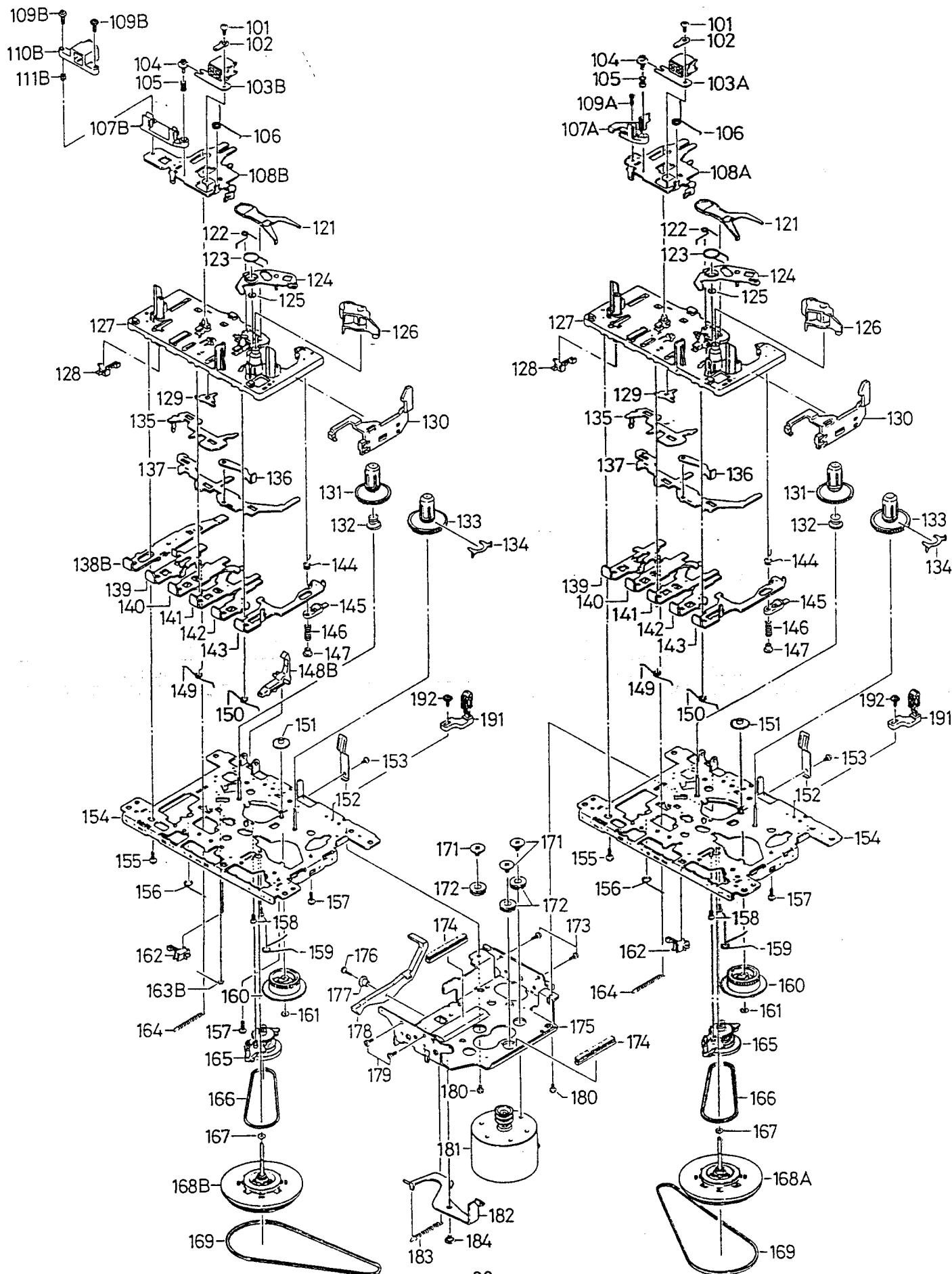
CD OPEN/CLOSE SWITCH P.W.BOARD ASSY

Ref. No.	Part No.	Description
77	614 267 1573	ASSY,PWB, CD,OPEN/CLOSE SWITCH
CN241	614 035 4911	SOCKET,2P
S2416	614 240 1002	SWITCH,TACT,OPEN/CLOSE

TAPE DECK STOP SWITCH P.W.BOARD ASSY

Ref. No.	Part No.	Description
80	614 265 1216	ASSY,PWB, TAPE DECK STOP SWITCH
CN317	614 020 6548	SOCKET,2P
or	614 223 9209	SOCKET,2P
S3001	645 011 5097	SWITCH,STOP

EXPLODED VIEW (TAPE MECHANISM)

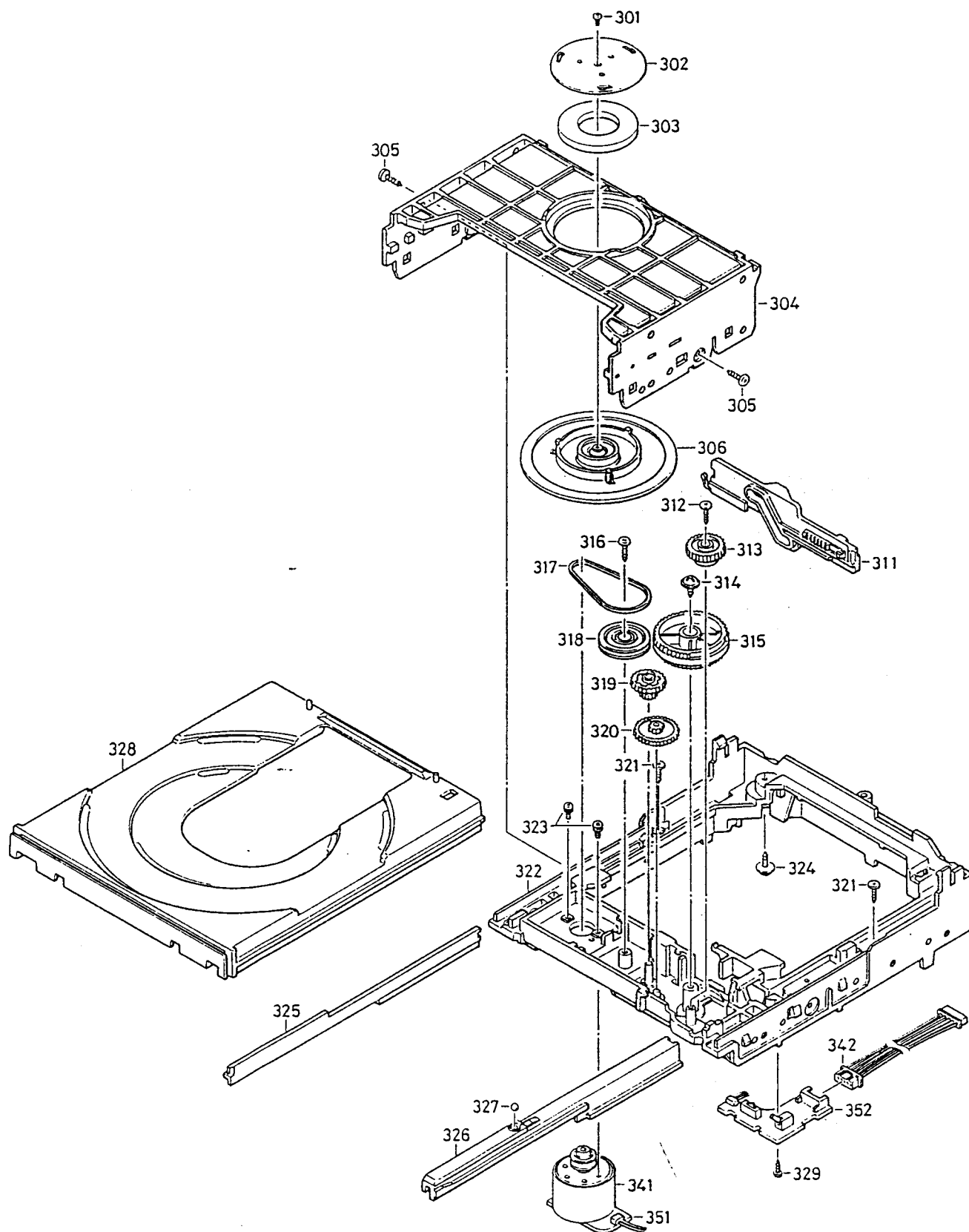


PARTS LIST

TAPE MECHANISM (TM - D12UTN)

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
101	412 031 6607	SPECIAL SCREW, (+) BIND SCREW 2X3MM	154	614 067 2770	CHASSIS ASSY
102	614 208 0276	LUG, TAPE HEAD	155	412 026 2201	SPECIAL SCREW, C TAPPING SCREW 2X5MM
103A	614 208 4052	HEAD, R/P, PLAY (A: TAPE "A")	156	614 152 1282	SPRING WIRE, PAUSE LEVER
103B	614 208 4052	HEAD, RECORD/PLAY, (B: TAPE "B")	157	412 026 2201	SPECIAL SCREW, P TAPPING BING SCREW 2X5MM
104	412 026 1709	SPECIAL SCREW, HEAD AZIMUTH SCREW 2X7MM	158	412 026 2300	SPECIAL SCREW, CAMERA TAPPING 2X4.5MM
105	614 151 7162	SPRING COIL, HEAD AZIMUTH	159	614 152 1275	SPRING WIRE, EJECT ACTUATOR
106	614 210 3432	SPRING WIRE, HEAD PANEL	160	614 134 9053	GEAR, CAM GEAR
107A	614 146 5111	BRACKET TAPE GUIDE, TAPE GUIDE	161	412 013 5000	SPECIAL WASHER, P WASHER CUT 1.2X3.8X0.3MM
107B	614 196 0470	BRACKET HEAD, HEAD PANEL	162	614 195 4424	SWITCH, PLAY
108A	614 211 6944	SLIDE, HEAD PANEL	163B	614 152 1305	SPRING WIRE, RECORD BUTTON
108B	614 210 6822	SLIDE, HEAD PANEL	164	614 151 4703	SPRING COIL, PLAY BUTTON
109A	412 026 1501	SPECIAL SCREW, (+), 2X6MM	165	614 069 2273	PULLEY ASSY, REW/F. FWD
109B	412 036 8200	SPECIAL SCREW, (+ -) CUP SCREW 2X7.5MM	166	614 195 5087	SQUARE BELT, RF BELT
110B	614 021 8831	MAGNETIC HEAD, ERASING	167	412 013 8902	SPECIAL WASHER, PW 2X3.5X0.3MM
111B	614 151 5090	SPRING COIL, ERASING HEAD	168A	614 204 8672	FLYWHEEL ASSY
121	614 140 1614	LEVER, SENSING	168B	614 068 1871	FLYWHEEL DISK ASSY
122	614 152 1299	SPRING WIRE, CONTROLLER	169	614 234 1377	BELT, SQUARE, MAIN
123	614 151 8312	SPRING PLATE, GEAR PLATE	171	412 026 1907	SPECIAL SCREW, MOTOR
124	614 070 0916	LEVER ASSY, GEAR PLATE ASSY	172	614 126 6831	CUSHION, MOTOR RUBBER
125	412 026 1808	SPECIAL WASHER, PW CUT 1.45X3.8X0.5MM	173	412 026 2003	SPECIAL SCREW, C TAPPING SCREW 2X4MM
126	614 237 2371	ASSY, PINCHROLLER	174	614 126 6848	CUSHION, ANTI-VIBRATION, FELT MAT
127	614 067 3258	SUB CHASSIS ASSY	175	614 122 9553	BRACKET MOTOR
128	614 024 1693	SWITCH, MOTOR POWER	176	412 031 7901	SPECIAL SCREW, C TAPPING SCREW 2X6MM
129	614 129 0676	BOSS, RECORD/PLAY STOPPER	177	614 129 0683	BOSS, COLLAR(B)
130	614 205 5410	SLIDE, EJECT	178	614 140 1676	LEVER, PLAY KICK LEVER-B
131	614 211 3868	REEL ASSY, SUPPLY	179	412 026 2003	SPECIAL SCREW, C TAPPING SCREW 2X4MM
132	614 208 0351	SPRING, COMP, BACK TENSION	180	412 026 2003	SPECIAL SCREW, C TAPPING SCREW 2X4MM
133	614 211 3875	REEL ASSY, TAKE UP	181	614 250 0309	ASSY, MOTOR WITH PULLEY
134	614 195 5094	LEVER, SENSOR	182	614 139 8679	LEVER, PLAY KICK LEVER-A
135	614 201 1744	SLIDE, SWITCH ACTUATOR	183	614 151 4758	SPRING COIL, PACK KICK LEVER
136	614 140 1539	LEVER, EJECT KICK	184	412 005 8101	SPECIAL SCREW, PACK KICK LEVER COLLAR
137	614 139 1120	SLIDE, PUSH BUTTON ACTUATOR	191	614 209 3849	SWITCH, LEAF, TAPE SELECT
138B	614 196 0500	LEVER, RECORD BUTTON	192	412 023 0903	SPECIAL SCREW, TAPPING SCREW 2X5MM
139	614 196 0555	LEVER, PLAY BUTTON	614 261 5218	ASSY, WIRE, 4P, PLAY HEAD	
140	614 196 0517	LEVER, REW BUTTON	614 261 5232	ASSY, WIRE, 7P, RECORD/PLAY, ERASE HEAD	
141	614 196 0524	LEVER, F. FWD BUTTON	614 261 5263	ASSY, WIRE, 5P, TAPE MECHANISM	
142	614 196 0531	LEVER, STOP/EJECT BUTTON	614 261 5270	ASSY, WIRE, 3P, TAPE SELECT SWITCH, CRO2	
143	614 208 0313	LEVER, PAUSE BUTTON			
144	614 152 1244	SPRING WIRE, PAUSE CONTROL			
145	614 208 0320	LEVER, PAUSE			
146	614 151 7186	SPRING COIL, PAUSE LEVER			
147	614 129 0669	BOSS, PAUSE STOPPER			
148B	614 140 1508	LEVER, UN-RECORDING SENSOR			
149	614 152 1251	SPRING WIRE, BUTTON LEVER			
150	614 152 1268	SPRING WIRE, BUTTON LEVER			
151	614 134 9046	GEAR, F. FWD			
152	614 151 8299	SPRING PLATE, CASSETTE HOLDER			
153	412 026 2003	SPECIAL SCREW, C TAPPING SCREW 2X4MM			

EXPLODED VIEW (CD MECHANISM, LOADING)



PARTS LIST

CD MECHANISM (PM - DADSS12)

Ref. No.	Part No.	Description
301	411 162 1901	SCR S-TPG PAN PCS 2X3MM, PLATE FIX
302	614 226 6885	PLATE,MAGNET FIX
or	614 233 0227	PLATE,MAGNET FIX
303	614 259 8481	MAGNET,CHUCK
or	614 262 8904	MAGNET,CHUCK
304	614 237 7017	MOUNT-M,CHUCK MOUNTING
or	614 255 2605	MOUNT-M,CHUCK MOUNTING
305	411 021 3107	SCR S-TPG BIN 2.6X8MM, MOUNT-M FIX
306	614 228 5848	ASSY,PULLEY,CHUCK
311	614 237 7208	SLIDE,BASE UP/DOWN
312	412 047 3904	SPECIAL SCREW, LOADING GEAR FIX
313	614 237 7079	GEAR,LOADING GEAR
314	411 020 9902	SCR S-TPG BRZ+FLG 3X8MM, GEAR FIX
315	614 237 7062	GEAR,LOADING CAM GEAR
316	411 021 3107	SCR S-TPG BIN 2.6X8MM, PULLEY FIX
317	614 237 7178	BELT,SQUARE,LOADING
318	614 237 7161	PULLEY,LOADING RELAY PULLEY
319	614 237 7048	GEAR,LOADING RETARD GEAR 1
320	614 237 7055	GEAR,LOADING RETARD GEAR 2
321	412 047 3904	SPECIAL SCREW,TRAY GUIDE FIX
322	614 237 6973	CHASSIS,LOADING CHASSIS
or	614 255 2575	CHASSIS,LOADING CHASSIS
323	411 044 7502	SCR PAN+SW 2X5MM, LOADING MOTOR FIX
324	411 020 9803	SCR S-TPG BRZ+FLG 3X6MM, CHASSIS SUB FIX
325	614 237 7192	SLIDE,TRAY GUIDE(L)
or	614 255 3954	SLIDE,TRAY GUIDE(L)
326	614 237 7185	SLIDE,TRAY GUIDE(R)
or	614 255 3947	SLIDE,TRAY GUIDE(R)
327	614 118 5927	STEEL BALL, TRAY GUIDE(R) LOCK
328	614 237 7215	TABLE,LOADING,TRAY
or	614 255 2612	TABLE,LOADING,TRAY
329	411 022 7807	SCR S-TPG PAN 2X6MM, SWITCH PWB FIX
341	614 238 7382	ASSY,MOTOR,LOADING MOTOR
342	614 265 1599	ASSY,WIRE,5P,SWITCH PWB
401	614 247 5683	ASSY,CHASSIS,BASE MECHA
401-1	614 216 9841	TURNTABLE
or	614 238 0413	TURNTABLE
401-2	411 044 7502	SCR PAN+SW 2X5MM, SPINDLE MOTOR
401-3	614 237 6980	CHASSIS,BASE MECHANISM
or	614 255 2582	CHASSIS,BASE MECHANISM
401-4	412 032 0208	SPECIAL WASHER
401-5	614 248 2315	COMMUTATE MOTOR,SPINDLE

Ref. No.	Part No.	Description
402	411 044 8004	SCR PAN+SW 2X8MM, SLED MOTOR FIX
403	614 237 7031	CUSHION,RUBBER, BASE MECHANISM FLOATING
404	614 237 7024	SHAFT,PICK UP RAIL
or	614 277 8029	SHAFT,PICK UP RAIL
405	412 045 0905	SPECIAL SCREW, PICK RACK GEAR FIX
406	614 237 7123	GEAR,PICK RACK GEAR
407	614 238 6934	SPRING,COMP,PICK RACK GEAR
408	614 239 1303	PICKUP,LASER,PICK UP
409	645 007 0006	FLEXIBLE FLAT CABLE, PICK UP
410	614 237 7093	GEAR,SLED RETARD GEAR 1
411	614 237 7109	GEAR,SLED RETARD GEAR 2
412	614 237 7116	GEAR,SLED GEAR
413	412 047 3904	SPECIAL SCREW,SLED GEAR FIX
414	614 265 3739	ASSY,WIRE,6P, BASE MECHANISM PCB
415	614 247 4907	SPRING,COMP, BASE MECHANISM FLOATING
416	614 237 7000	CHASSIS,SUB, BASE MECHANISM MOUNTING
or	614 255 2599	CHASSIS,SUB, BASE MECHANISM MOUNTING
417	411 021 3107	SCR S-TPG BIN 2.6X8MM, BASE MECHANISM FIX
418	412 044 3907	SPECIAL WASHER, BASE MECHANISM FIX
441	614 238 7399	ASSY,MOTOR, SLED MOTOR

LOADING MOTOR P.W.BOARD ASSY

Ref. No.	Part No.	Description
351	614 254 0657	ASSY PCB,LOADING MOTOR
C599	403 121 9509	CERAMIC 0.1U Z 50V

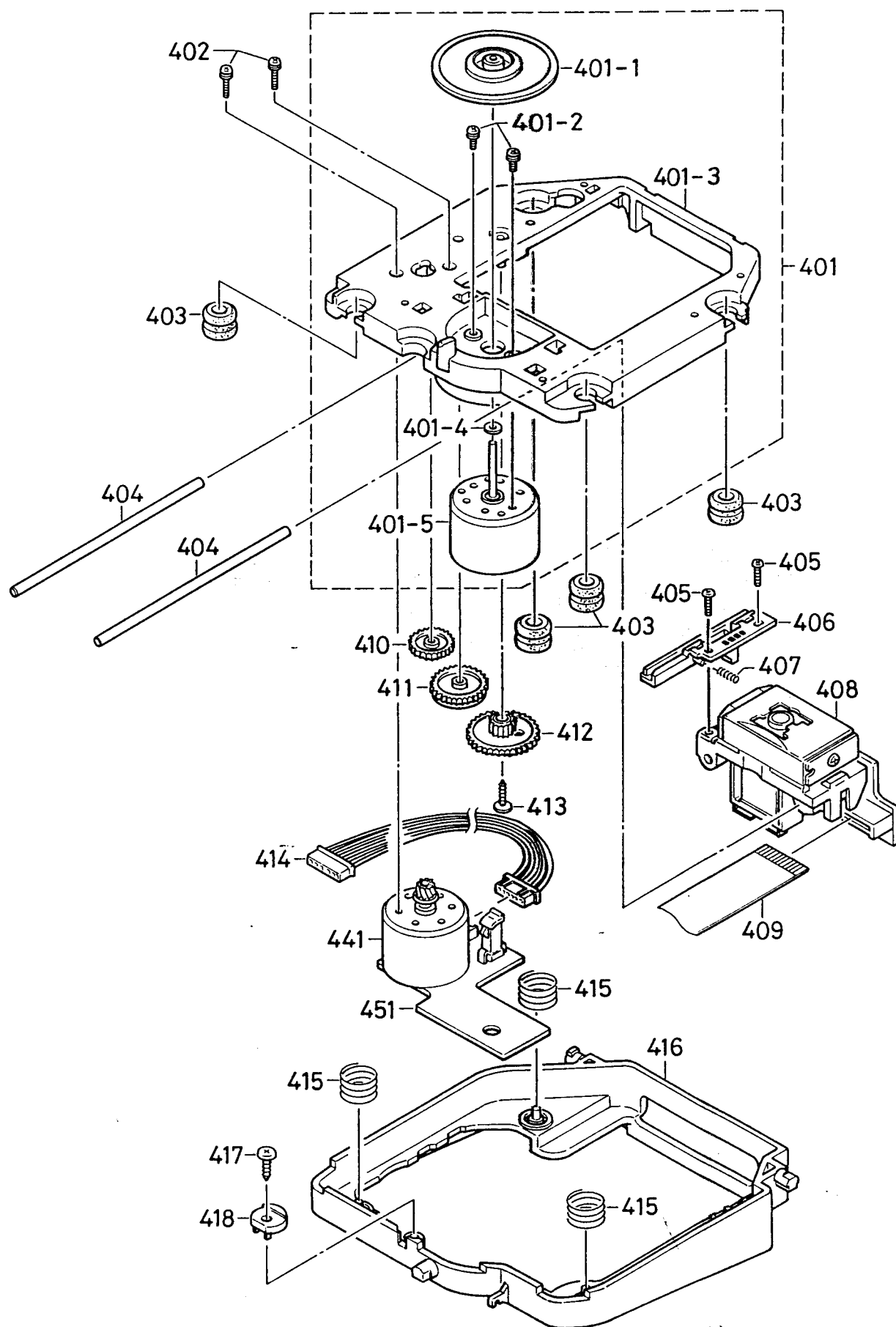
OPEN / CLOSE SWITCH P.W.BOARD ASSY

Ref. No.	Part No.	Description
352	614 254 0640	ASSY PCB,OPEN/CLOSE SWITCH
CN011	645 006 0922	PLUG,5P,SWITCH PWB CONNECTOR
S011	614 231 3992	SWITCH,PUSH,CHUCK END
S012	614 241 9489	SWITCH,SLIDE,TRAY OPEN/END

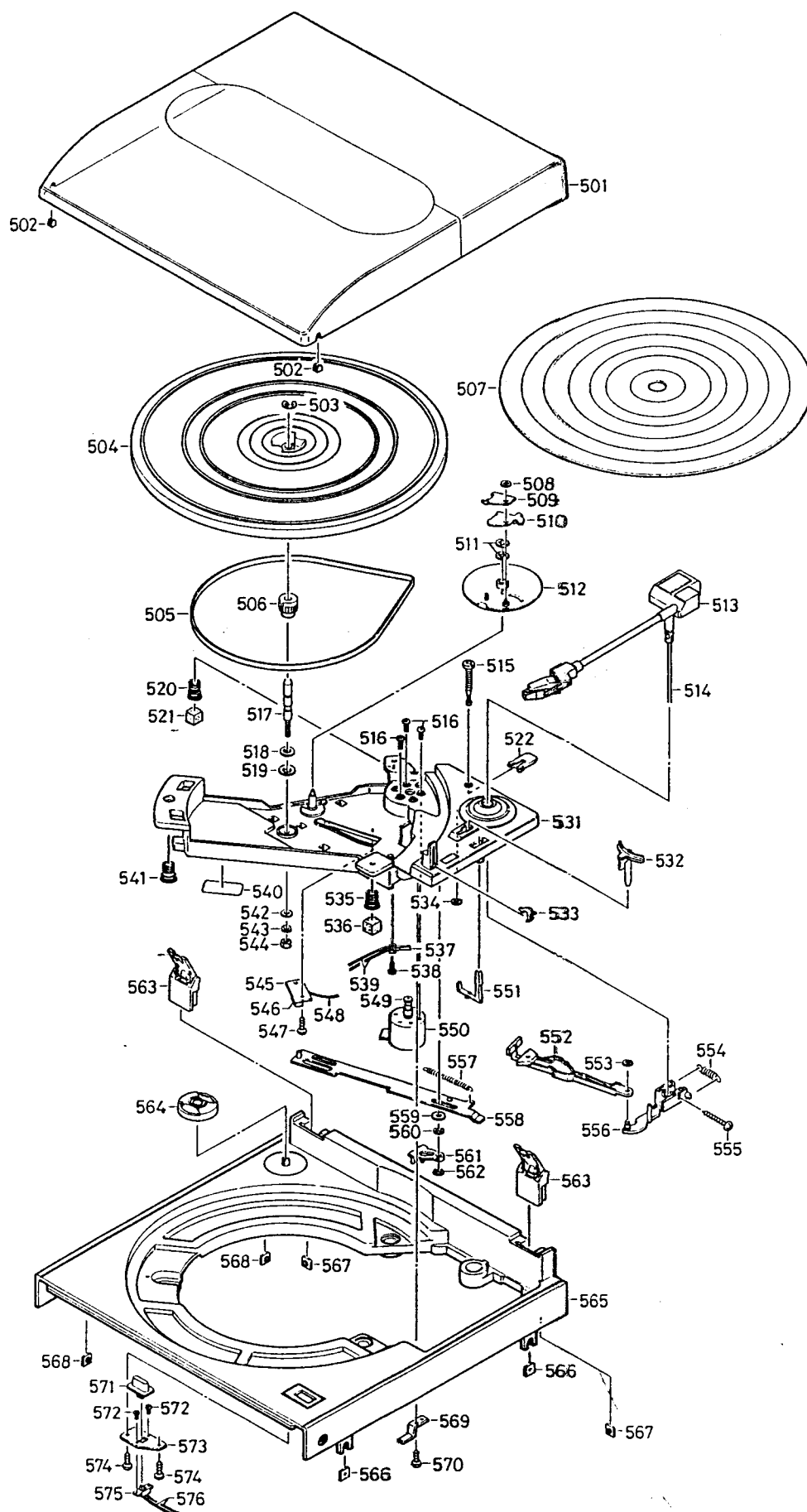
SLED / SPINDLE MOTOR P.W.BOARD ASSY

Ref. No.	Part No.	Description
451	614 254 0664	ASSY,PCB,SLED/SPINDLE MOTOR
CN001	645 006 0939	PLUG,6P,MOTOR PWB CONNECTOR
S001	614 231 4005	SWITCH,LEAF,LIMIT

EXPLODED VIEW (CD MECHANISM, MAIN)



EXPLODED VIEW (TURNTABLE MECHANISM)



PARTS LIST

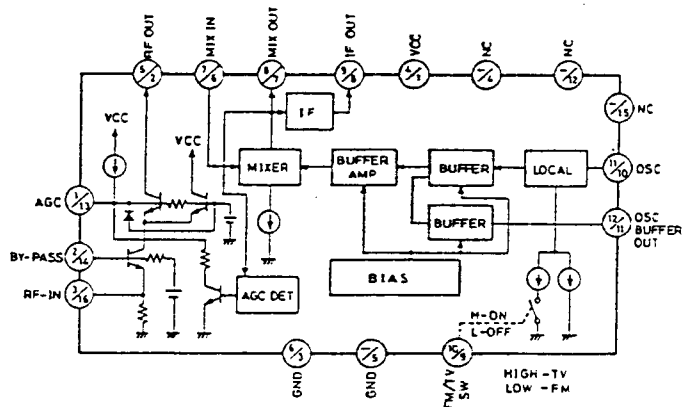
TURNTABLE MECHANISM (PL - DL670)

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
501	645 007 0662	DUST COVER	541	645 007 0587	SPRING, FLOATING
502	645 007 0594	CUSHION, DUST COVER	542	645 007 0495	WASHER, SPINDLE FIX
503	645 007 0471	6MM E RING, TURN TABLE RETAINER	543	645 007 0907	WASHER, SPINDLE FIX
504	645 007 0686	TURNTABLE, PLATTER	544	645 007 0532	NUT, SPINDLE FIX
505	645 007 0402	BELT, TURN TABLE	545	645 007 0549	P.C. BOARD, TURNTABLE
506	645 007 0693	GEAR, TURN TABLE	546	645 007 0419	CONNECTOR
507	645 007 0600	RUBBER MAT, TURN TABLE	547	645 007 0372	SCREW
508	645 007 0297	3MM CS RING, CLUTCH PLATE RETAINER	548	645 007 0884	WIRE
509	645 007 0358	CLUTCH PLATE UPPER, TRIP PAWL	549	645 007 0457	PULLEY MOTOR
510	645 007 0310	CLUTCH PLATE COVER, TRIP CLUTCH PLATE	550	645 007 0525	MOTOR
511	645 007 0303	4MM CS RING, CAM GEAR RETAINER	551	645 007 0815	LEVER, CUEING
512	645 007 0341	SPUR GEAR, CAM GEAR	552	645 007 0778	SLIDE, PLATE RETURN, TRIP LEVER
513	645 008 7158	TONE ARM ASSY	553	645 007 0297	3MM CS RING
A	614 225 9115	CARTRIDGE	554	645 007 0655	SPRING, ARM LEVER SPRING
B	614 001 7779	NEEDLE CARTRIDGE, STYLUS, ST-707J	555	645 007 0747	SCREW, AUTO RETURN ADJUSTMENT
514	645 007 0280	TIE, TONE ARM	556	645 007 0617	LINK RETURN, ARM LEVER
515	645 007 0754	SCREW, 5MM, SHIPPING	557	645 007 0334	SPRING, CAM SLIDE PULL SPRING
516	645 007 0761	SCREW, MOTOR FIX	558	645 007 0396	LEVER RETURN, CAM SLIDE
517	645 007 0716	SPINDLE, SPINDLE SHAFT	559	645 007 0501	WASHER
518	645 007 0914	WASHER, TURN TABLE THRUST	560	645 007 0464	3 MM, E RING
519	645 007 0709	OIL CUP	561	645 007 0556	SHUT OFF PLATE SWITCH
520	645 007 0563	SPRING, FLOATING	562	645 007 0464	3MM E RING, SHUT OFF PLATE RETAINER
521	645 007 0679	SPONGE, FLOATING	563	645 007 0860	HING PLASTIC, HING
522	645 007 0853	CLIP, USE FOR SHIPPING	564	645 007 0792	ADAPTER, 45 ADAPTER
531	645 007 0433	CHASSIS	565	645 007 0440	WELL
532	645 007 0365	TONE ARM ELEVATOR	566	645 008 8902	FIX PLATE
533	645 007 0822	ARM CLIP	567	645 008 8902	FIX PLATE
534	645 007 0297	3MM CS RING	568	645 008 8902	FIX PLATE
535	645 007 0570	SPRING, FLOATING	569	645 007 0389	IRON PLATE, FLOATING UPPER STOPPER
536	645 007 0679	SPONGE, FLOATING	570	645 007 0372	SCREW, PART FIX
537	645 007 0846	SWITCH, AUTO SHUT-OFF SWITCH	571	645 007 0785	BUTTER, SPEED SWITCH NOB
538	645 007 0730	SCREW, SWITCH FIX	572	645 007 0723	SCREW, SPEED SWITCH FIX
539	645 007 0877	WIRE	573	645 007 0808	SPEED BRACKET, SWITCH BRACKET
540	645 007 0518	LABEL	574	645 007 0372	SCREW
			575	645 007 0839	SLIDE SWITCH, SPEED SELECT
			576	645 007 0891	WIRE
				645 007 0488	EVA

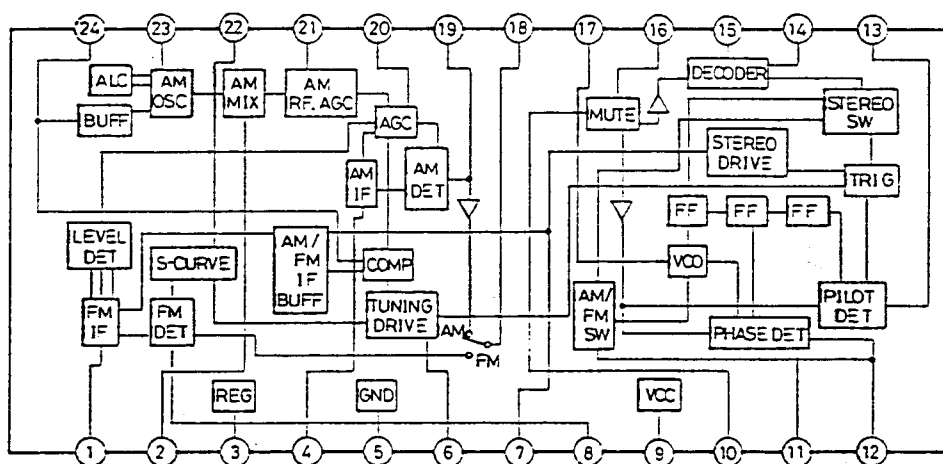
IC BLOCK DIAGRAM

TUNER/AMP. SECTION

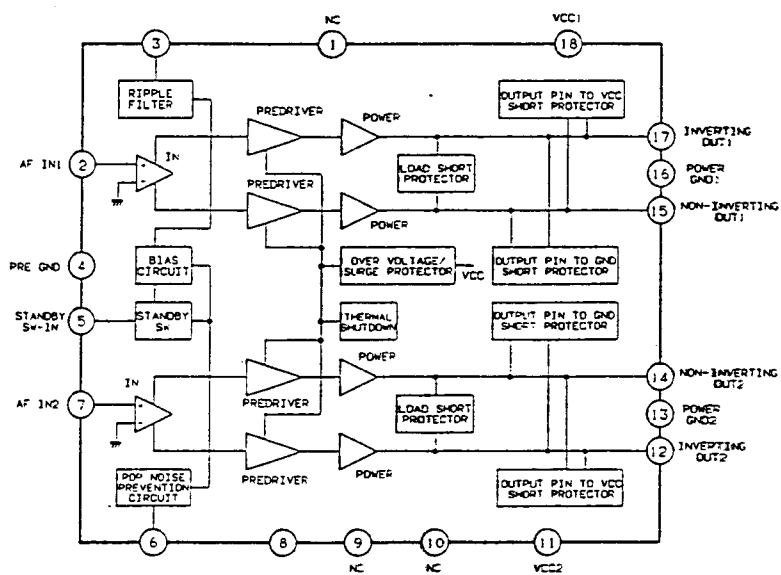
IC211 TA8176S (FM FRONT END)



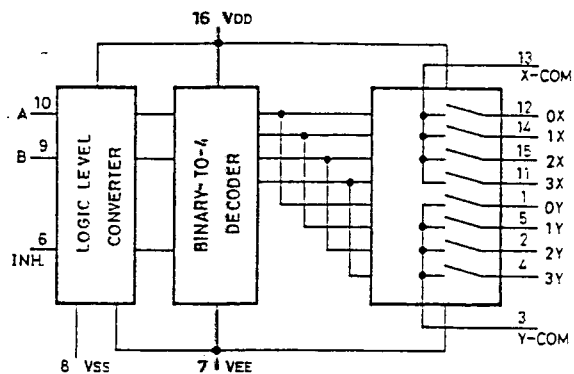
IC231 LA1831 (AM/FM IF & FM MPX)



IC402 LA4705 (POWER AMP.)



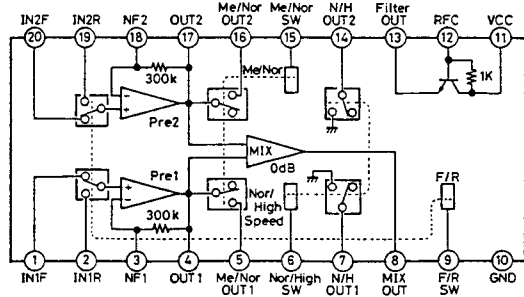
IC52 TC4052 (MULTIPLEXER/DEMULTIPLEXER)



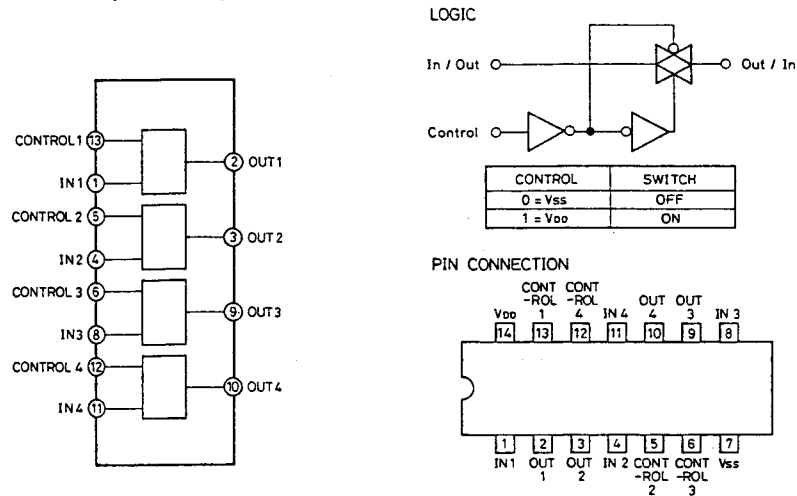
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TAPE DECK SECTION

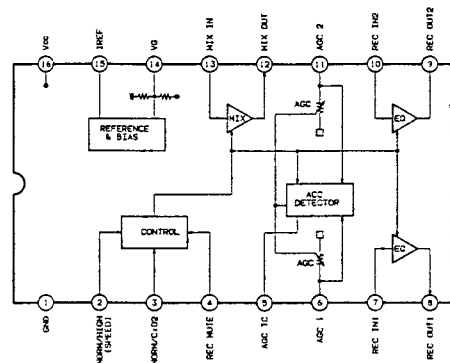
IC370 LA3246 (PRE-AMP./MIXING AMP./SWITCHING)



IC371 MLC4066B (SWITCHING)



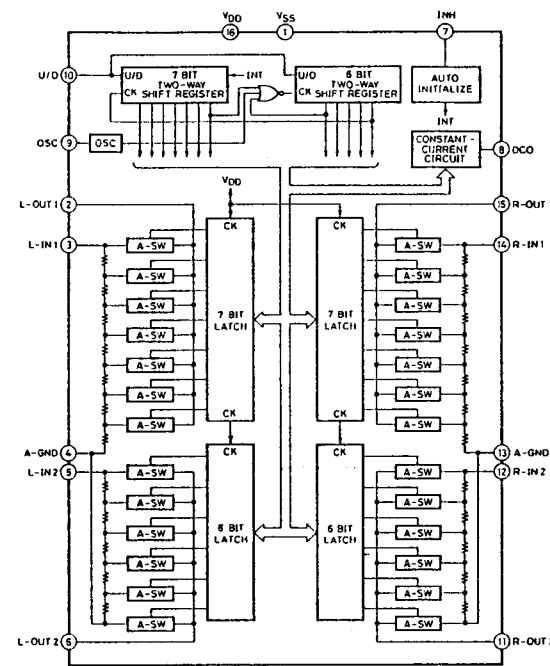
IC374 CXA1298AP (EQUALIZER AMP.)



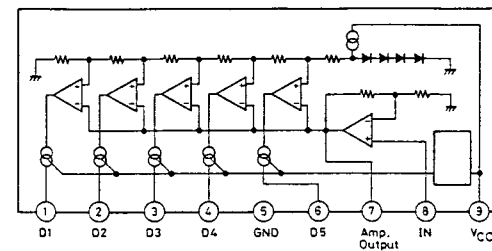
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CD/Front SECTION

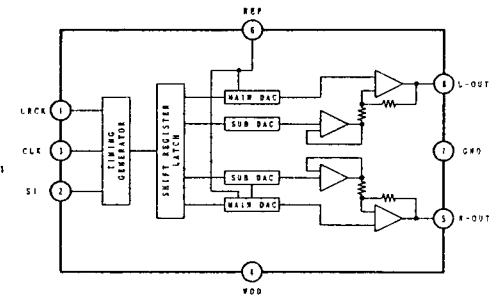
IC421 TC9153AP (ELECTRONIC VOLUME)



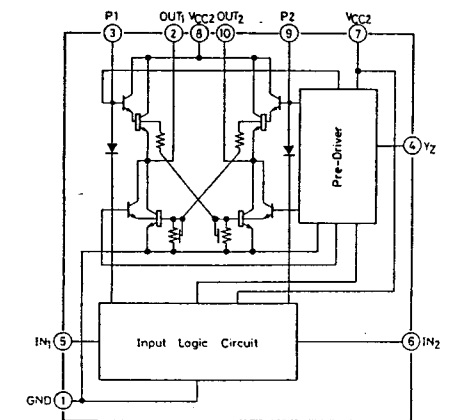
IC422 BA6125 (LED LEVEL INDICATOR)



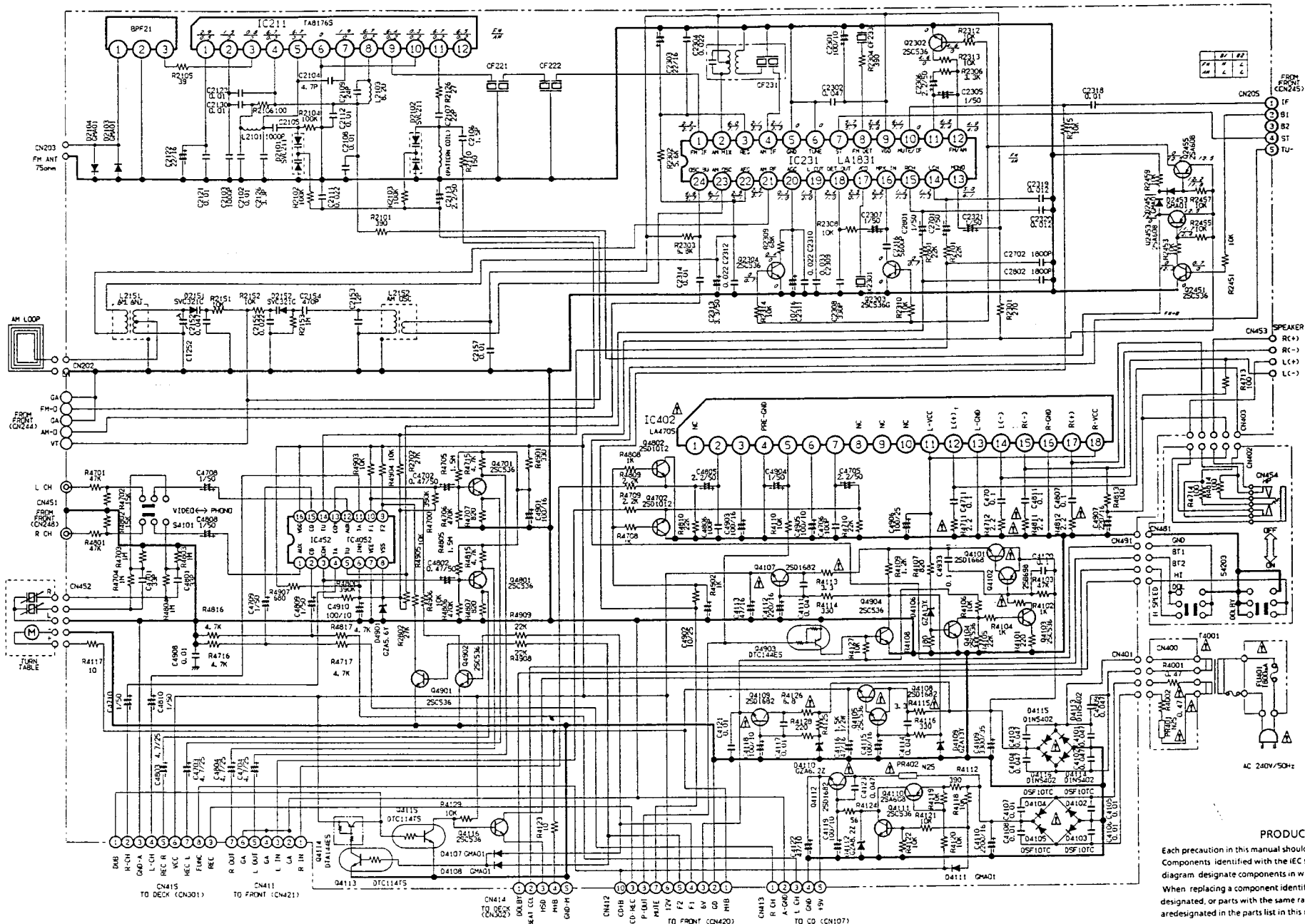
IC103 μ PD6379 (D/A CONVERTER)





IC106 LB1641 (CD LOADING MOTOR DRIVER)



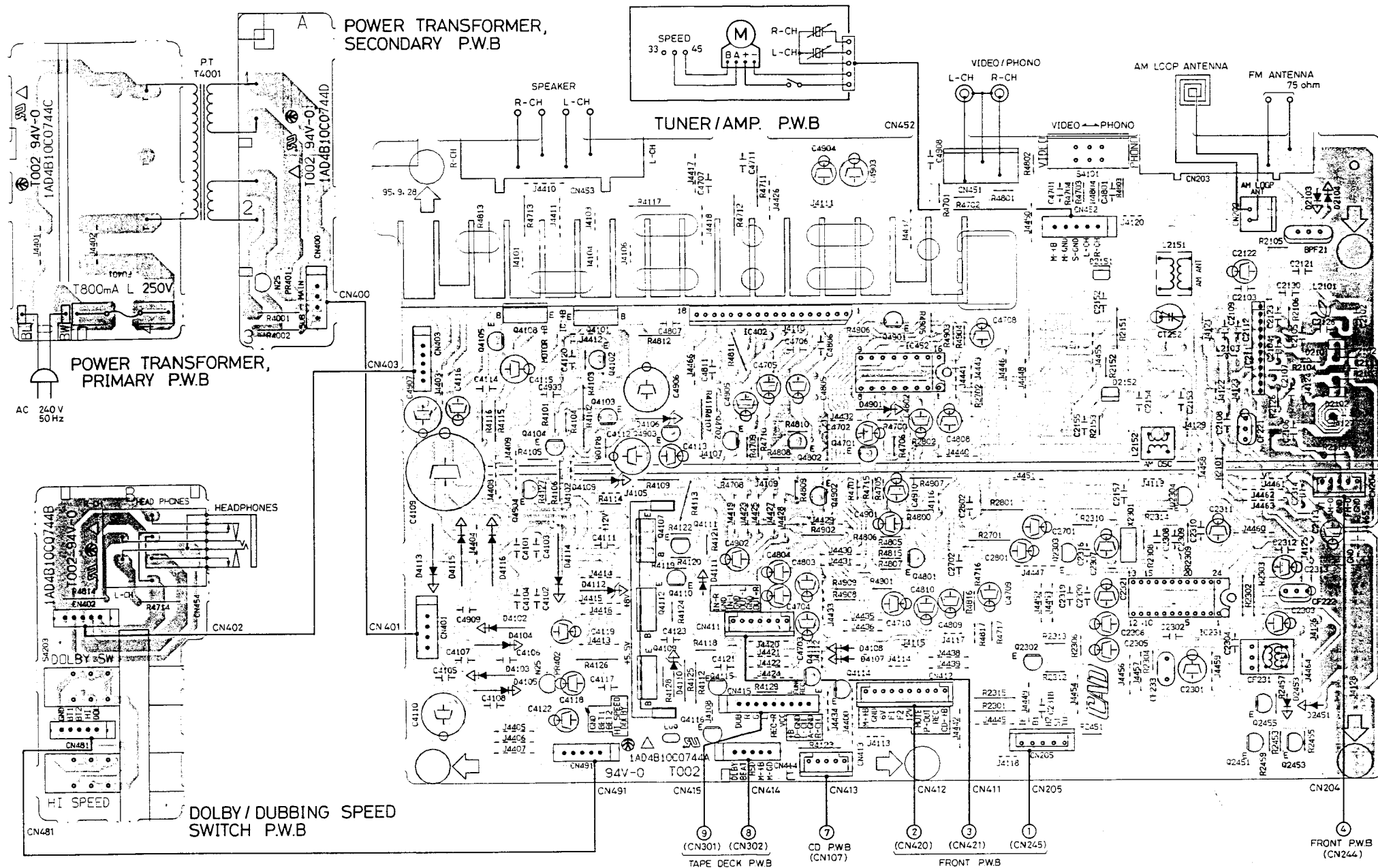
SCHEMATIC DIAGRAM (TUNER / AMP.)



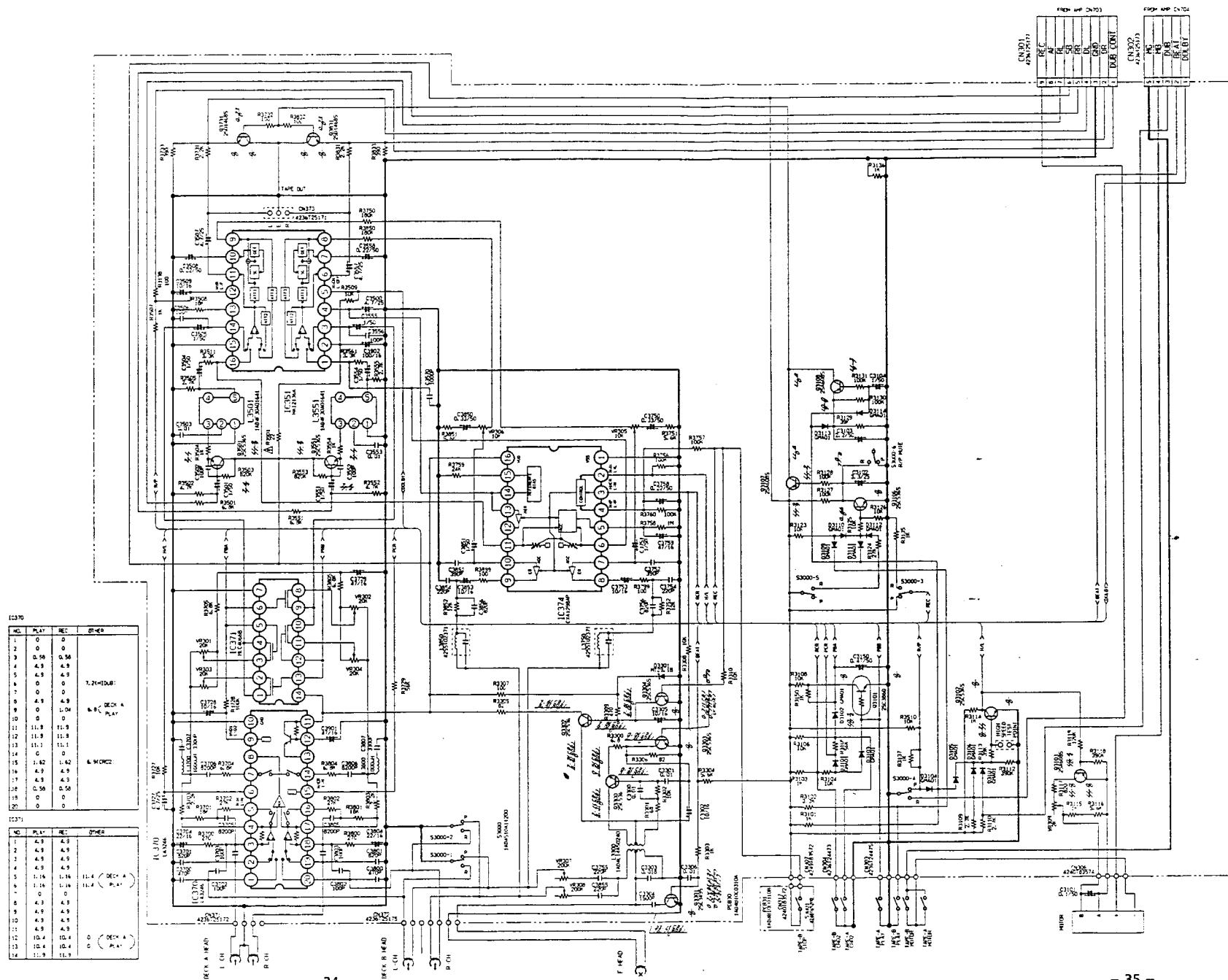
PRODUCT SAFETY NOTICE

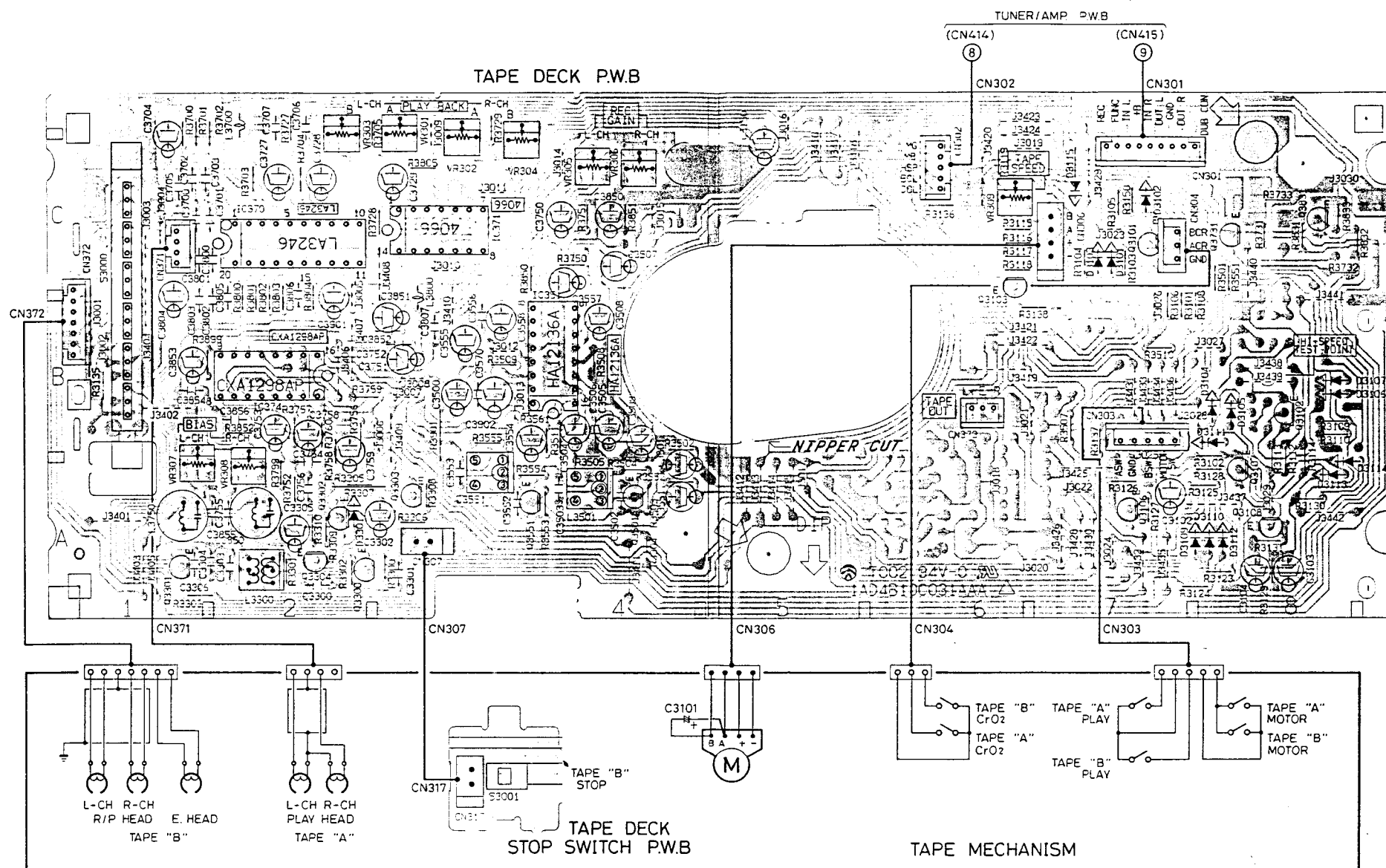
Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol  in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified , use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual.

WIRING DIAGRAM (TUNER & AMP.)

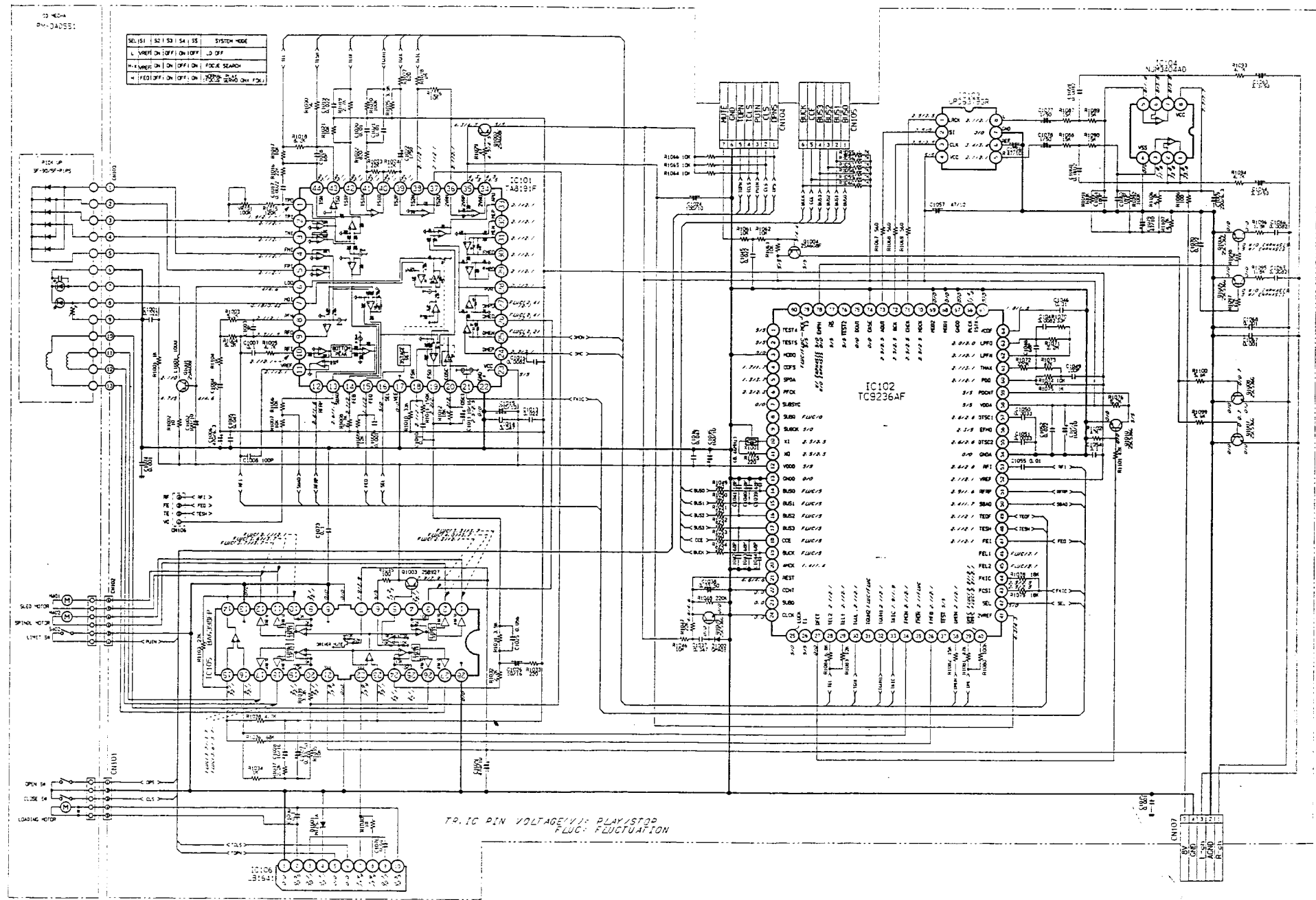


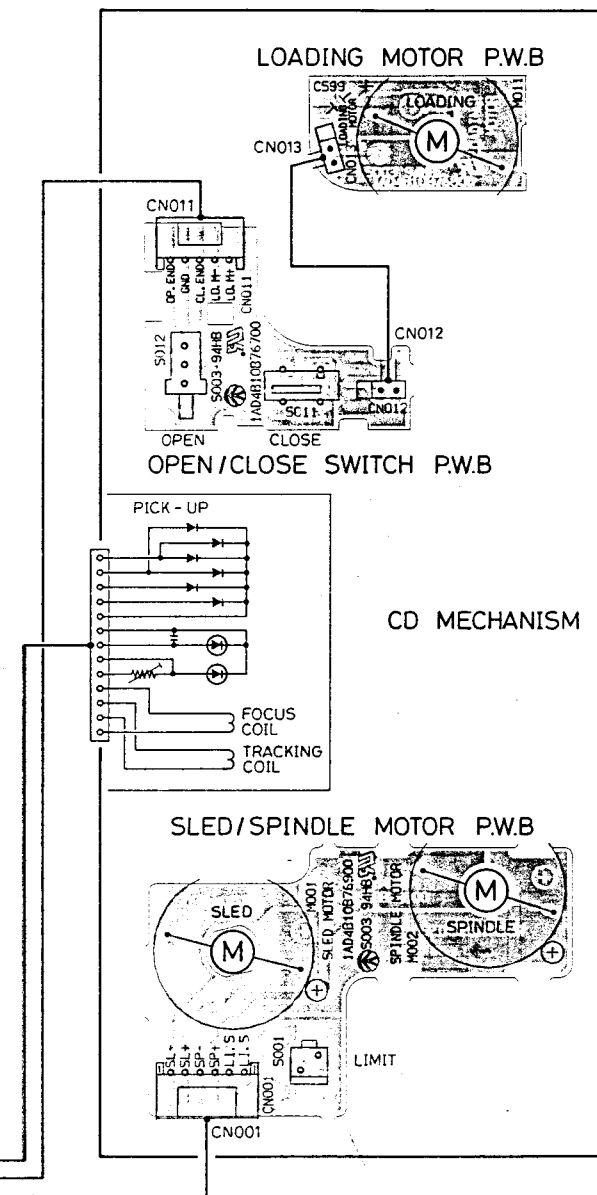
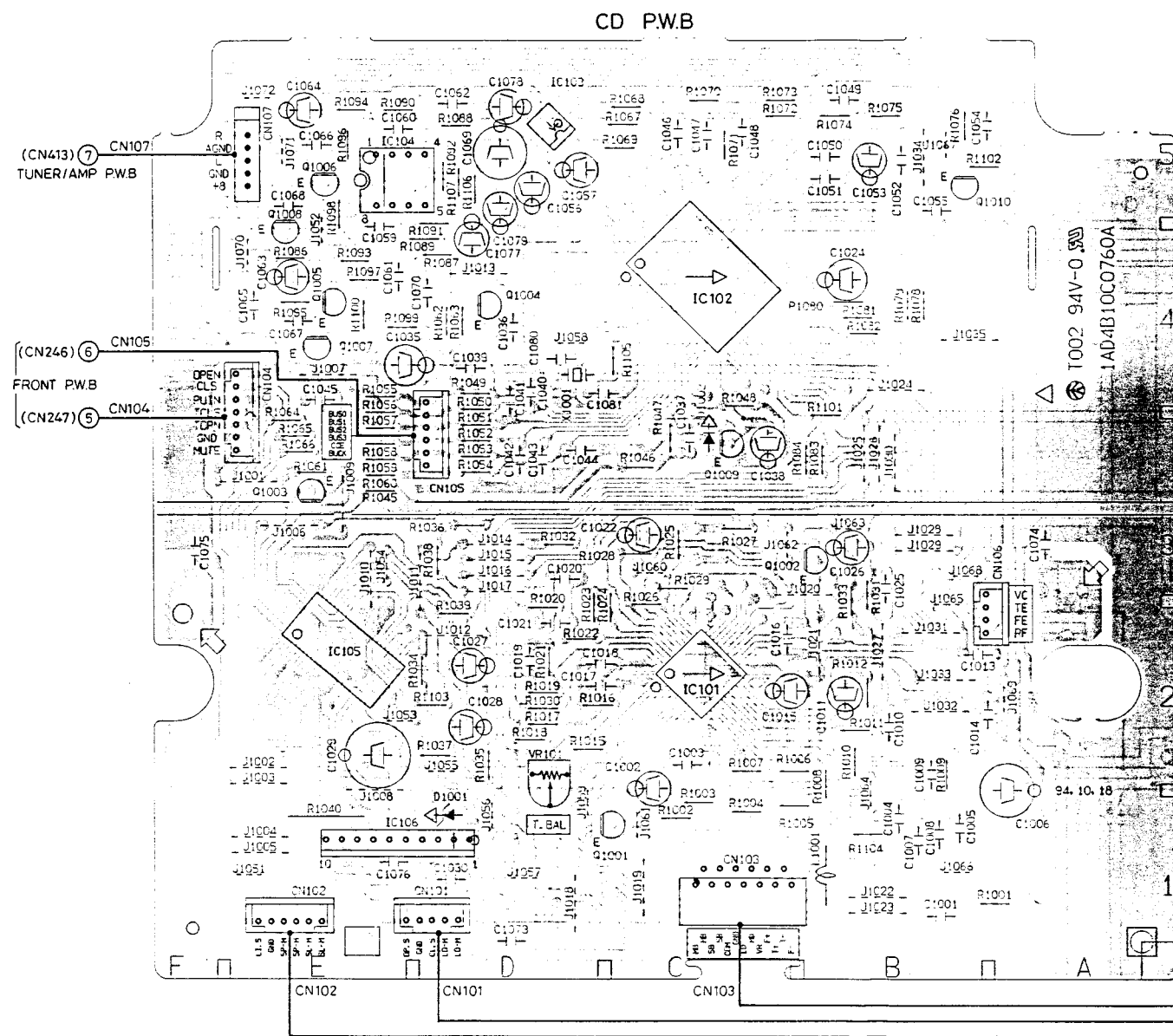
SCHEMATIC DIAGRAM (TAPE DECK)



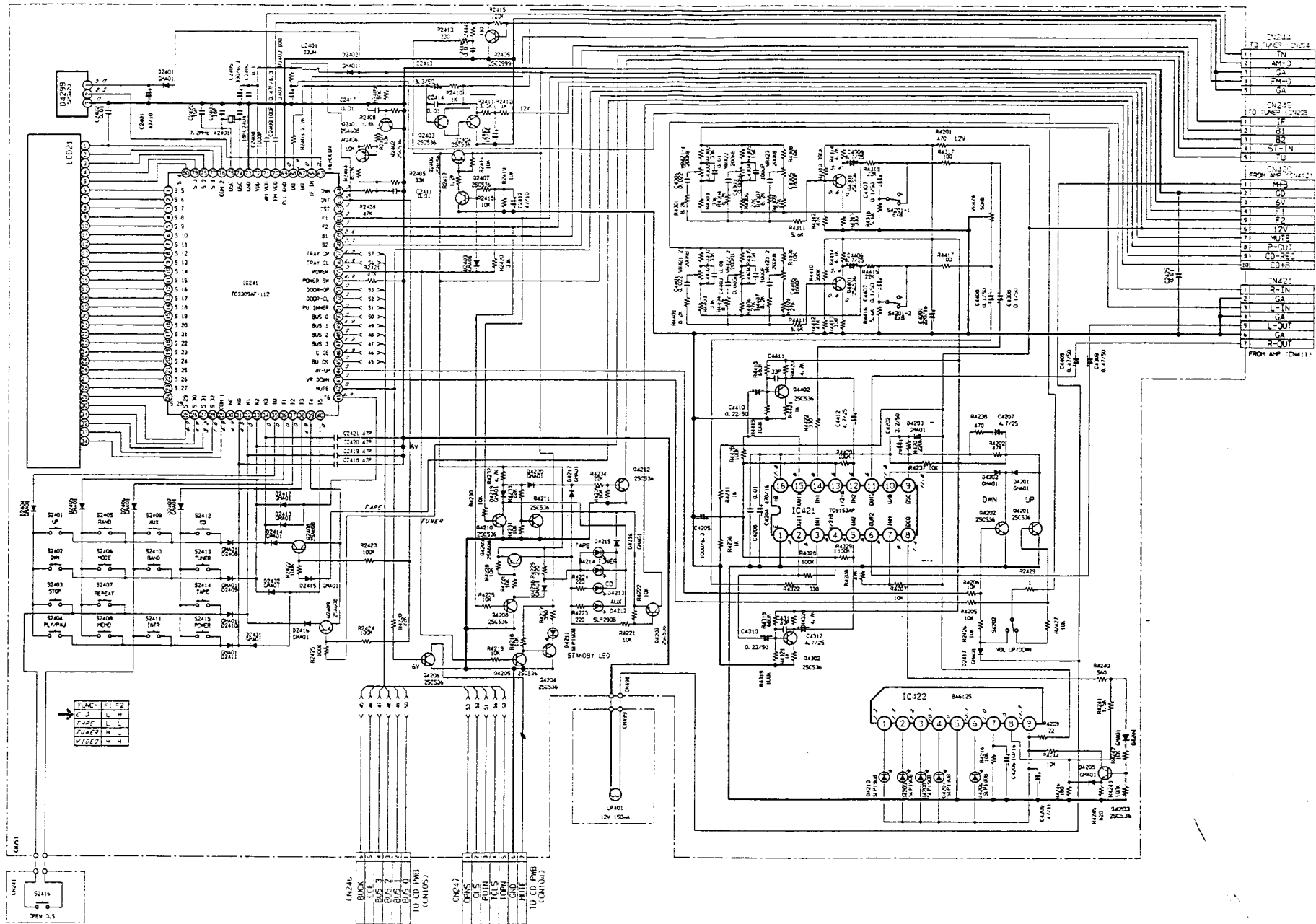


SCHEMATIC DIAGRAM (CD)

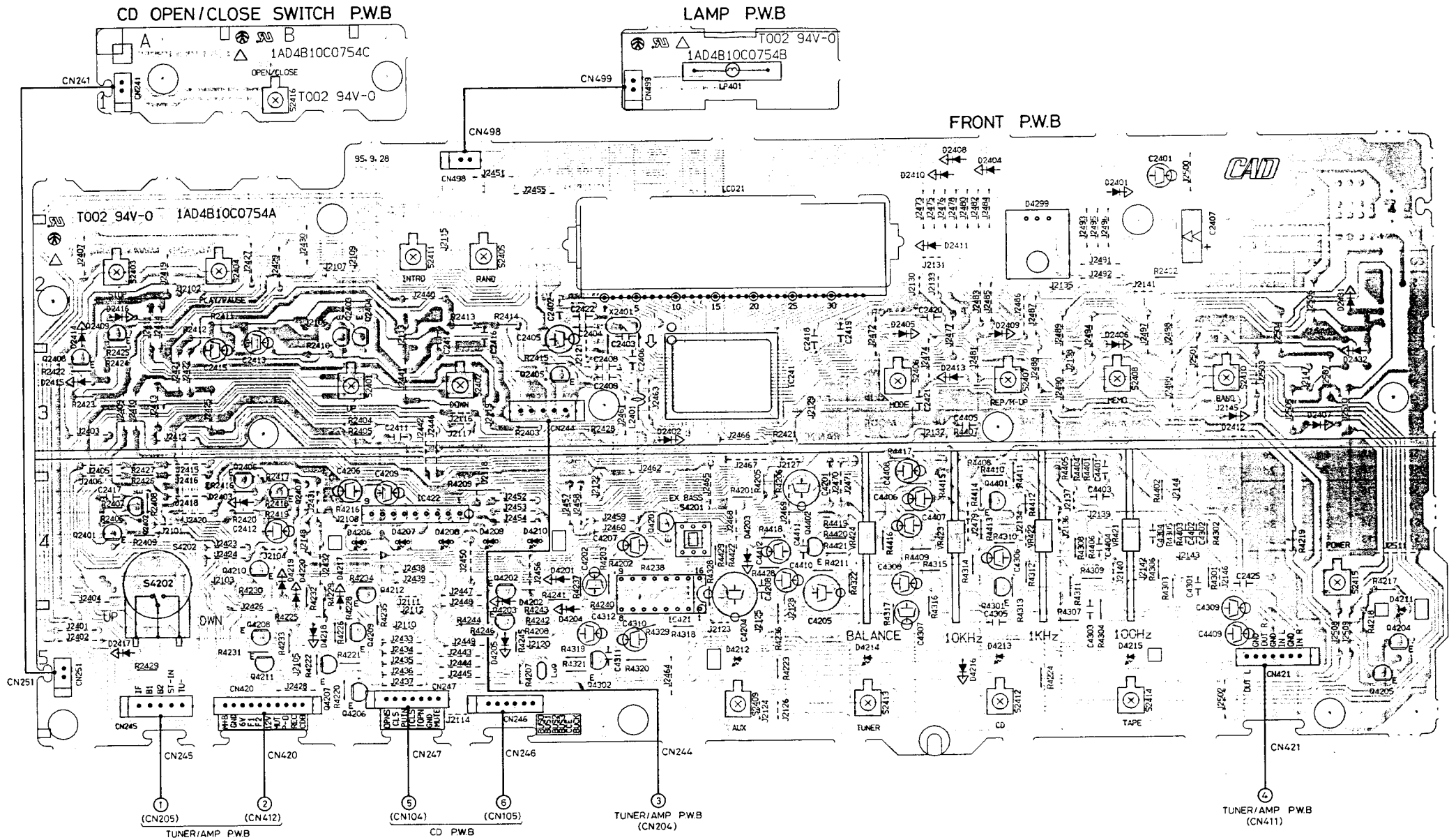




SCHEMATIC DIAGRAM (FRONT OPERATION)

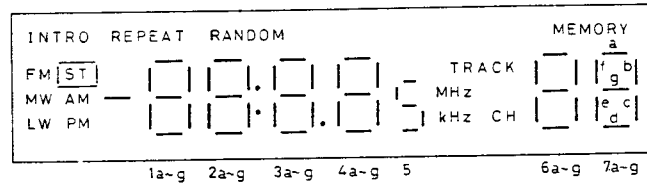


WIRING DIAGRAM (FRONT OPERATION)



IC DESCRIPTION

IC241 TC9309F-112 (DIGITAL TUNING SYSTEM)



LCD MAP

SYMBOL	PIN No.	SEGMENT NAME	COM1	COM2	FUNCTION
COM1	29	COM1	-		COMMON 1
S32	28	INTRO	LW		INTRO : INTRO SCAN
S31	27	FM	MW		FM MW LW : BAND ST : STEREO
S30	26	ST	AM		AM/PM : CLOCK AM : BAND
S29	25	REMAIN	PM		REMAIN : CD REMAIN mark
S28	24	REPEAT	1a		REPEAT : REPEAT mark
S27	23	1b	1b		1 a - g : 23 : 55 / 108.05
S26	22	1g	1e		
S25	21	1c	1d		
S24	20	RANDOM	2a		RANDOM : RANDOM mark
S23	19	2b	2f		2 a - g : 23 : 55 / 108.05
S22	18	2g	2e		
S21	17	2c	2d		
S20	16	": "	3a		": " : COLON of clock
S19	15	3g	3e		3 a - g : 23 : 55 / 108.05
S18	14	3c	3d		
S17	13	3b	3f		
S16	12	": "	4a		": " : COLON of FM band
S15	11	4g	4e		4 a - g : 23 : 55 / 108.05
S14	10	4c	4d		
S13	9	4c	4d		
S12	8	4b	4f		
S11	7	5	5		5 : 107.05
S10	6	TRACK	MHz		TRACK : TRACK mark
S9	5	CH	kHz		MHz : MHz of FM band
S8	4	6a	6a		kHz : kHz of MW (AM) / LW
S7	3	6g	6e		CH : CHANNEL mark
S6	2	6c	6d		6 a - g : CH 10
S5	1	6b	6f		
S4	80	MEMORY	7a		MEMORY : MEMORY mark
S3	79	7g	7e		7 a - g : CH 10
S2	78	7c	7d		
S1	77	7b	7f		
COM2	76	-	COM2		COMMON 2

PIN No. () : PORT

31 (K0)	32 (K1)	33 (K2)	34 (K3)	
PLAY / PAUSE	STOP	DOWN / R-SKIP	UP / F-SKIP	35 (T0)
MEMORY / C-ADJ	M-UP / REPEAT	MODE / REMAIN	RANDOM	36 (T1)
INTRO	OPEN / CLOSE	BAND	AUX	37 (T2)
POWER	TAPE	TUNER	CD	38 (T3)
	**		**	39 (T4)
	STEREO		CD-REC	
A0 *	A1 *	A2 *	24H / 12H	40 (T5)
T0 *		BAND OUT	FUNC OUT	41 (T6)

This is a diode jumper.

This is a transistor switch.

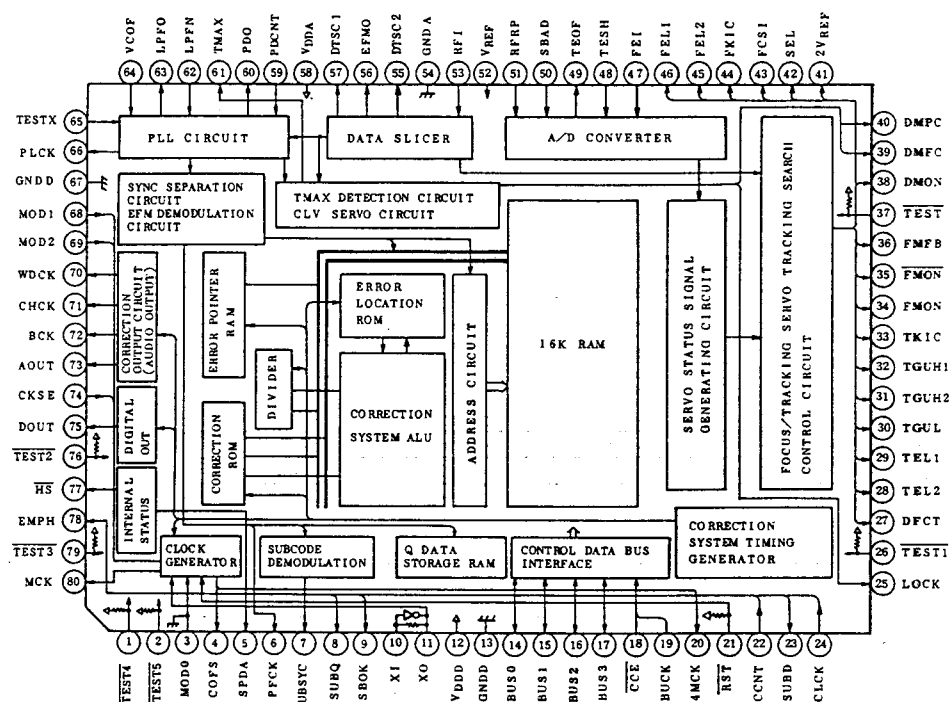
IC DESCRIPTION

IC241 TC9309F-112 (DIGITAL TUNING SYSTEM)

PIN No.	PRT NAME	I/O	FUNCTION	ACTI VE	INT.
42	MUTE	OUT	MUTE OUTPUT :	H	H
43	VOL-DN	OUT	OUTPUT FOR VOLUME CONTROL :	H	L
44	VOL-UP	OUT	PORT NOP UP DOWN	H	L
45	BUCK	OUT	IC102 (CD PROCESSOR)	-	H
46	CCE	OUT	OUTPUT or I/O FOR CD CONTROL :	L	H
47	BUS3	I/O		H	(IN)
48	BUS2	I/O		H	(IN)
49	BUS1	I/O		H	(IN)
50	BUS0	I/O		H	(IN)
51	PU INNER	IN	PICK UP POSITION INPUT port :	L	
52	DOOR-CLS	IN	CD TRAY POSITION INPUT ports :	L	
53	DOOR-OPN	IN	DOOR-OPEN DOOR-CLOSE	L	
54	POWER SW	IN	POWER ON/OFF CONTROL Input port : * If POWER SW diode jumper is "H" then (POWER) key is invalid. WITH "POWER SW" diode : POWER ON. WITHOUT "POWER SW" diode : POWER OFF.	H	-
55	POWER	OUT	POWER CONTROL output port :	H	L
56	TRAY-CLS	OUT	CD TRAY OPEN or CLOSE output ports :	H	L
57	TRAY-OPN	OUT		H	L
58	B2	I/O	BAND INPUT / OUT-ports :	L	
59	B1	I/O	WITH "BAND OUT" diode : OUTPUT port. WITHOUT "BAND OUT" diode : INPUT port.	H	
60	F2	I/O	FUNCTION INPUT / OUTPUT port :	-	L
61	F1	I/O	WITH "FUNC OUT" diode : OUTPUT port. WITHOUT "FUNC OUT" diode : INPUT port.	-	H
65	REMO-CON	IN	REMOTE CONTROL INPUT :	-	
66	IF-IN	IN	INTERMEDIATE FREQUENCY INPUT : The intermediate frequency (FM = 10.7MHz, MW/LW = 450kHz) is inputted through the capacitor.	-	
31	K0	O	KEY TIMING OUTPUT		
32	K1	O	KEY TIMING OUTPUT		
33	K2	O	KEY TIMING OUTPUT		
34	K3	O	KEY TIMING OUTPUT		
35	T1	O	KEY TIMING OUTPUT		
36	T2	O	KEY TIMING OUTPUT		
37	T3	O	KEY TIMING OUTPUT		
38	T4	O	KEY TIMING OUTPUT		
39	T5	O	KEY TIMING OUTPUT		
40	T6	O	KEY TIMING OUTPUT		
67	D02	O	PHASE COMPARATOR OUTPUT		
68	D01	O	PHASE COMPARATOR OUTPUT		
69	GND2		PLL GND		
70	FM IN	I	FM VCO		
71	AM IN	I	AM VCO		
72	VDD		VDD		
73	GND1		CPU GND		

IC BLOCK DIAGRAM & DESCRIPTION

IC102 TC9236AF (CD PLAYER CONTROL)



IC DESCRIPTION

IC102 TC9236AF (CD PLAYER CONTROL)

PIN No	SYMBOL	I/O	FUNCTIONAL DESCRIPTION	REMARKS
1	TEST4	I	Test terminal. Normally, keep at "H" level or open.	With pull-up resistor
2	TEST5	I	Test terminal. Normally, keep at "H" level or open.	With pull-up resistor
3	MOD0	I	Internal operation mode setting input terminal.	With pull-down resistor
4	COFS	O	Correction system frame periodic signal output terminal. 7.35kHz	
5	SPDA	O	Processor status signal output terminal. Correction process judging result, memory buffer capacity, etc.	
6	PFCF	O	Regeneration system frame periodic signal output terminal. 7.35kHz	
7	SUBSYN	O	Subcode sync signal output terminal.	
8	SUBQ	O	Subcode Q data output terminal.	
9	SBOK	O	Subcode Q data CRC check adjusting result output terminal. The adjusting result is OK at "H" level.	
10	X1	I	Crystal oscillator connecting terminals.	
11	XO	O	Crystal oscillator connecting terminals.	
12	VDDD	-	Digital supply voltage terminal. (+5V)	
13	GNDD	-	Digital ground terminal.	
14	BUS0	I/O	Command and data sending/receiving input/output terminals.	Schmitt input
15	BUS1	I/O	Command and data sending/receiving input/output terminals.	Schmitt input
16	BUS2	I/O	Command and data sending/receiving input/output terminals.	Schmitt input
17	BUS3	I/O	Command and data sending/receiving input/output terminals.	Schmitt input
18	CCE	I	Command and data sending/receiving chip enable signal input terminal. The bus line becomes active at "L" level.	Schmitt input
19	BUCK	I	Command and data sending/receiving clock input terminal.	Schmitt input
20	4MCK	O	4M clock output terminal. 4.2336MHz	
21	RST	I	Reset input terminal. The internal system is reset at "L" level.	With pull-up resistor
22	CONT	I	Subcode Q data control bit updata inhibiting signal input terminal. Updata is inhibited at "H" level.	Emphasis, copy, channel information
23	SUBD	O	Subcode P ~ W output terminals.	
24	CLCK	I	Subcode P ~ W data readout clock input terminal.	
25	LOCK	O	Lock status output terminal. If a sync pattern under EFM signal cannot be detected for 17ms continuously by runaway detection information, this terminal is put at "L" level.	
26	TEST1	I	Test terminal. Normally, keep at "H" level or open.	With pull-up resistor
27	DFCT	O	Defect detection signal output terminal. V _{REF} when defect is detected. Normally, HiZ. (HiZ = Hi impedance)	
28	TEL2	O	Tracking gain adjusting analog switch output terminals. V _{REF} or HiZ.	
29	TEL1	O	Tracking gain adjusting analog switch output terminals. V _{REF} or HiZ.	
30	TGUL	O	Tracking servo loop low frequency phase compensator change-over analog switch output terminal. HiZ (gain up) when detecting shock. Normally, V _{REF} .	
31	TGUH2	O	Tracking servo loop middle/high frequency phase compensator change-over analog switch output terminals. HiZ (gain up) when detecting shock. Normally, V _{REF} .	
32	TGUH1	O	TGUH1 is used at normal regeneration and TGUH2 is used at double speed regeneration.	
33	TKIC	O	Tracking actuator kick signal output terminal. Kicks in the outer circumferential direction at "H" level and in the inner circumferential direction at "L" level.	

IC DESCRIPTION

PIN No	SYMBOL	I/O	FUNCTIONAL DESCRIPTION	REMARKS																
34	FMON	O	Feed servo ON/OFF analog switch output terminal. <table><tr><td>Feed Servo</td><td>FMON</td><td>FMON</td></tr><tr><td>ON</td><td>HiZ</td><td>V_{REF}</td></tr><tr><td>OFF</td><td>V_{REF}</td><td>HiZ</td></tr></table>	Feed Servo	FMON	FMON	ON	HiZ	V _{REF}	OFF	V _{REF}	HiZ								
Feed Servo	FMON	FMON																		
ON	HiZ	V _{REF}																		
OFF	V _{REF}	HiZ																		
35	FMON	O																		
36	FMFB	O	Feed motor FWD/BWD feeding control signal output terminal. Feed in the outer circumferential direction at "H" level and in the inner circumferential direction at "L" level.	3-state output																
37	TEST	I	Test terminal. Normally, keep at "H" level or open.	With pull-up resistor																
38	DMON	O	Disc motor driving circuit gain change-over analog switch output terminal.																	
39	DMFC	O	Disc motor CLV servo AFC signal output terminal. <table><tr><td>Command</td><td>DMFC Output</td><td>Operation</td></tr><tr><td>DMFK</td><td>H</td><td>Motor acceleration</td></tr><tr><td>DMSV</td><td>PWM</td><td>CLV servo ON</td></tr><tr><td>DMBK</td><td>L</td><td>Motor deceleration</td></tr><tr><td>DMOFF</td><td>V_{REF}</td><td>CLV servo OFF</td></tr></table>	Command	DMFC Output	Operation	DMFK	H	Motor acceleration	DMSV	PWM	CLV servo ON	DMBK	L	Motor deceleration	DMOFF	V _{REF}	CLV servo OFF	3-state output	
Command	DMFC Output	Operation																		
DMFK	H	Motor acceleration																		
DMSV	PWM	CLV servo ON																		
DMBK	L	Motor deceleration																		
DMOFF	V _{REF}	CLV servo OFF																		
40	DMPC	O	Disc motor CLV servo APC signal output terminal.	3-state output																
41	2V _{REF}	I	Double times reference voltage input terminal. (V _{REF} X2)																	
42	SEL	O	Servo mode indicating signal output terminal. <table><tr><td>SEL</td><td>LD ON/OFF</td><td>Focus Servo</td><td>Operation</td></tr><tr><td>L</td><td>OFF</td><td>OFF</td><td>LD OFF</td></tr><tr><td>HiZ</td><td>ON</td><td>OFF</td><td>Focus Serch</td></tr><tr><td>H</td><td>ON</td><td>ON</td><td>Normal Play, etc. (Focus Servo ON : FOK)</td></tr></table>	SEL	LD ON/OFF	Focus Servo	Operation	L	OFF	OFF	LD OFF	HiZ	ON	OFF	Focus Serch	H	ON	ON	Normal Play, etc. (Focus Servo ON : FOK)	3-state output
SEL	LD ON/OFF	Focus Servo	Operation																	
L	OFF	OFF	LD OFF																	
HiZ	ON	OFF	Focus Serch																	
H	ON	ON	Normal Play, etc. (Focus Servo ON : FOK)																	
43	FCSI	O	Focus actuator driving signal output terminal in the focus search mode. <table><tr><td>Command</td><td>FCSI Output</td><td>Operation</td></tr><tr><td>FORST</td><td>H</td><td>Lens gets far away from disc</td></tr><tr><td>FOSET</td><td>L</td><td>Lens gets near disc</td></tr><tr><td>Others</td><td>HiZ</td><td>Other than focus search</td></tr></table>	Command	FCSI Output	Operation	FORST	H	Lens gets far away from disc	FOSET	L	Lens gets near disc	Others	HiZ	Other than focus search	3-state output				
Command	FCSI Output	Operation																		
FORST	H	Lens gets far away from disc																		
FOSET	L	Lens gets near disc																		
Others	HiZ	Other than focus search																		
44	FKIC	O	Focus actuator driving signal output terminal in the focus gain adjustment mode. <table><tr><td>Command</td><td>FKIC Output</td><td>Operation</td></tr><tr><td>FGASR</td><td>H</td><td>Lens gets far away from disc</td></tr><tr><td>FGASS</td><td>L</td><td>Lens gets near disc</td></tr><tr><td>Others</td><td>HiZ</td><td>Other than focus adjustment</td></tr></table>	Command	FKIC Output	Operation	FGASR	H	Lens gets far away from disc	FGASS	L	Lens gets near disc	Others	HiZ	Other than focus adjustment	3-state output				
Command	FKIC Output	Operation																		
FGASR	H	Lens gets far away from disc																		
FGASS	L	Lens gets near disc																		
Others	HiZ	Other than focus adjustment																		
45	FEL2	O	Focus again adjusting analog switch output terminals.																	
46	FEL1	O	Focus again adjusting analog switch output terminals.																	
47	FEI	I	Focus error signal input terminal.	Analog input																
48	TESH	I	Tracking error signal input sample holding analog switch input terminal.																	
49	TEOF	O	Tracking servo operation ON/OFF analog switch output terminal. V _{REF} when the tracking servo is OFF.																	
50	SBAD	I	Sub beam adding signal input terminal.	Analog input																
51	RFRP	I	RF ripple signal input terminal.	Analog input																
52	V _{REF}	I	Reference voltage input terminal. (+ 2.1V)																	
53	REI	I	RF signal input terminal.	Analog input																
54	GND A	-	Analog ground terminal.																	
55	DTSC2	O	Data slice control EFM signal passive output terminal.																	
56	EFMO	O	EFM signal monitor output terminal.	Binary data																

IC DESCRIPTION

PIN No	SYMBOL	I/O	FUNCTIONAL DESCRIPTION	REMARKS								
57	DTSC1	O	Data slice control EFM signal negative output terminal.									
58	V _{DDA}	-	Analog supply voltage terminal. (+5V)									
59	PDCNT	I	PDO output control terminal. At "L" level, PDO output is made to HiZ by force.									
60	PDO	O	Phase error signal output terminal between EFM signal and PLCK.	3-state output								
61	TMAX	O	TMAX signal output terminal. HiZ at time of system clock. <table border="1"><tr><td>TMAX Period</td><td>TMAX Output</td></tr><tr><td>Longer than specified period</td><td>L</td></tr><tr><td>Shorter than specified period</td><td>H (2V_{REF})</td></tr><tr><td>Specified period</td><td>HiZ</td></tr></table>	TMAX Period	TMAX Output	Longer than specified period	L	Shorter than specified period	H (2V _{REF})	Specified period	HiZ	3-state output
TMAX Period	TMAX Output											
Longer than specified period	L											
Shorter than specified period	H (2V _{REF})											
Specified period	HiZ											
62	LPFN	I	LPF amplifier inverting input terminal for PLL.									
63	LPFO	O	LPF amplifier output terminal for PLL.									
64	VCOF	I	VCO filter terminal.									
65	TESTX	I	Test terminal.									
66	PLCK	O	Regenerator data read clock output terminal.									
67	GNDD	-	Digital ground terminal.									
68	MOD1	I	Internal operation mode setting input terminal.									
69	MOD2	I	Internal operation mode setting input terminal.									
70	WDCK	O	Word clock output terminal. Normally, 88.2kHz.									
71	CHCK	O	Channel clock output terminal. Normally, 44.1kHz.									
72	BCK	O	Bit clock output terminal. Normally, 1.4112MHz.									
73	AOUT	O	Audio data output terminal.									
74	CKSE	I	Internal clock selection terminal.									
75	DOUT	O	Digital out output terminal.									
76	TEST2	I	Test terminal. Normally, keep at "H" level or open.	With pull-up resistor								
77	$\overline{\text{HS}}$	O	Double speed monitor output terminal. Double speed operation at "L" level.									
78	EMPH	O	Emphasis ON/OFF indication signal output terminal. Emphasis ON at "H" level.									
79	TEST3	I	Test terminal. Normally, keep at "H" level or open.	With pull-up resistor								
80	MCK	O	Master clock output terminal.									

SANYO

 SANYO Electric Co., Ltd.
 Osaka, Japan